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Making Hot-Pressed or Forged Brass

Advantages of the Percussion Power Press—Application to Bronze, Nickel, Tin and Aluminum—Details of Process

BY L. S. LOVE*

SUPPLEMENTARY information to that contained in an article in THE IRON AGE March 30 on "Brass Forgings" may be of value to those interested in the economical production of parts made from brass, bronze, copper, nickel, tin, aluminum, etc., made possible in recent years in the development of the percussion power press.

Pressing parts from these various metals in a heated condition has been practiced extensively abroad for many years, particularly in Germany, in machines of various kinds. In that country machines somewhat similar to the percussion press in principle, although different in design, are being used. Of recent years, and especially during the war, this method of producing parts ready for machining operations, or even for use as finished products, has developed rapidly in this country.

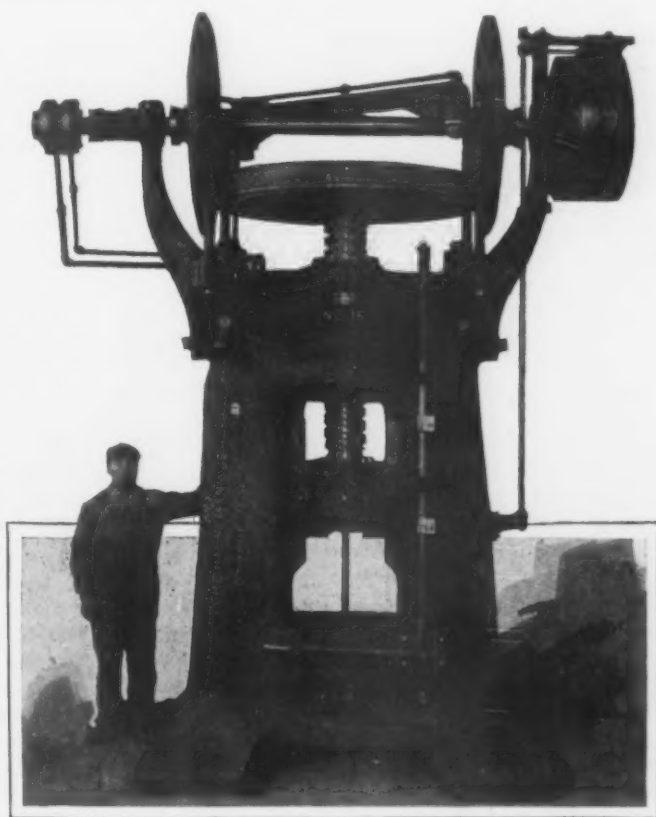
The earliest experiments were made with the idea of securing brass blanks, such as fuse bodies, ready for machining, which would be of uniform density, free from blow-holes, pin-holes, and other defects, due to methods of casting in sand or metal molds, and have a higher tensile strength than ordinary brass castings which had not been subjected to this treatment. These experiments were conducted first with ordinary castings, heated and placed in dies in power presses of the single action, crank type, double action type and also knuckle joint embossing type. In some plants drop hammers were used; in others hydraulic presses.

In each case with the various machines employed, difficulties were encountered for different reasons. In the case of crank presses, one of the main objections found was the fact that blanks would vary in size and thickness, resulting in pressed parts of varying

density and consequently, so far as uniformity was concerned, little better for the purposes required than the castings used as blanks. Another objection to the crank press was found to be the fact that the oversize blanks would throw a tremendous strain on these presses when passing the dead center, resulting in many instances in broken press frames and broken cranks. Another objection to the crank press is the fact that it exerts comparatively little pressure until it reaches dead center, when the pressure is all exerted instantly; the result is often pressed parts which may be scant at some point, the metal not having had time to fill all recesses in the die, or which had become cold and been

cracked in the sudden impact as the press passed dead center. The same objections applying to crank presses apply also to knuckle presses.

The chief objection to the use of drop hammers was found in the fact that the blow was too sudden and severe. The metal would not have time to fill all the recesses in the die; it would crack, due to the force of the blow, or it would be found that the sudden blow had condensed the outside of the piece, but the pressure had not reached the inside, making forgings which were not homogeneous. This last condition would appear particularly where variations were present in the size of blanks.



Brass Forgings Are Made on a Percussion Power Press of This Type

*Barbour, Love & Woodward, Inc., New York. The author acknowledges assistance of engineers of the Zeh & Hahnemann Co., Newark, N. J., in compiling information.

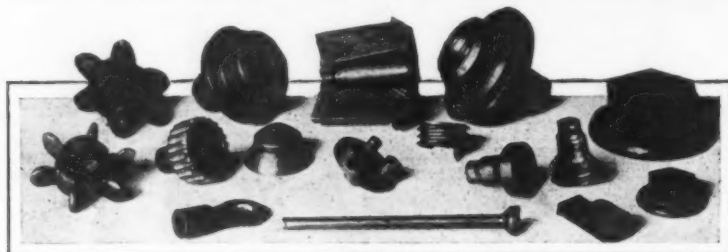
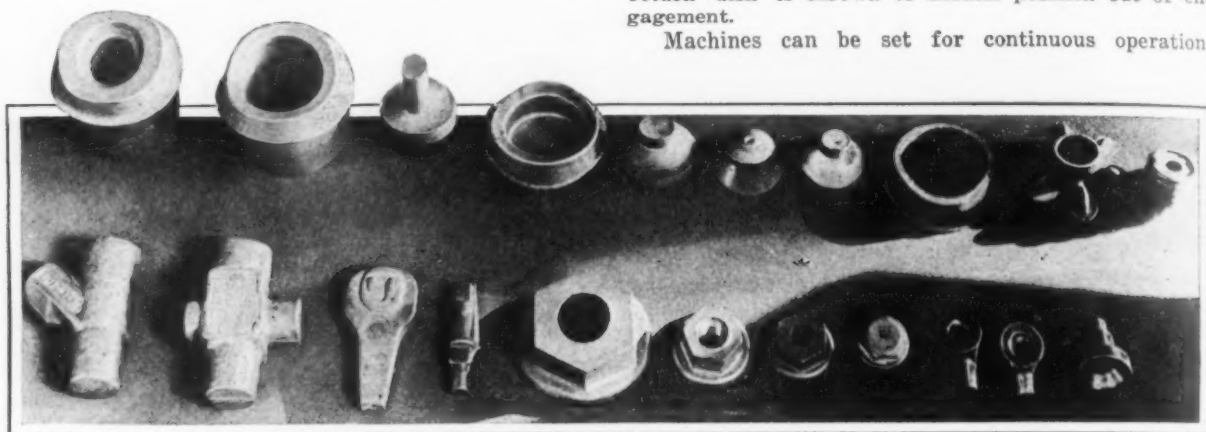
Hydraulic presses were found to be too slow, allowing the metal to cool before full pressure was applied, thereby producing forgings too scant, due to low temperature when pressure was applied or cracked, due to pressure when cold.

While these experiments were going on in the plants of many brass goods manufacturers, with greater or less degree of success in different instances, the Zeh & Hahnemann Co., Newark, N. J., was experimenting along the same lines with its percussion power press, using blanks cut from ordinary brass rod and extruded brass. This press was first developed

to a dead stop, into the final blow. The action is too fast to permit the blank to cool, but is sufficiently slow to permit of completely filling all recesses in the die.

The ram is returned to the high position by reversing the operation. A trip actuated automatically throws off the driving disk, and advances the return disk. This latter is mounted on the same shaft which carries the driving disk, but on the opposite side of the flywheel. The action on the flywheel is decelerating as it moves up toward the centre of the disk, where it is stopped by a brake automatically applied and the return disk is thrown to normal position out of engagement.

Machines can be set for continuous operation,



Varieties of Products Made of Hot Pressed or Forged Brass and Other Non-Ferrous Alloys and Metals. They include acetylene welding tips, gas connections, phonograph parts, etc.

by the company several years prior to this time for the purpose of embossing, cold-forming numerous articles, and other manner of press work; in fact, for many of the uses for which drop presses, knuckle presses, etc., had been used.

It was found that the percussion power press was ideal for forging brass, due to the peculiar action of the press and the effect of that action on the work. As will be noted from one of the illustrations, the machine is a screw press operated by power. The power is applied to the screw through a heavy flywheel attached to its upper end. This wheel is driven by means of a friction disk which can be brought in contact with its periphery at the will of the operator, through a lever conveniently mounted on the smaller presses, or by means of the lever or of compressed air on the larger sizes. This lever or air cylinder moves the shaft carrying the driving disk endwise, thereby bringing the disk itself to the flywheel periphery. This shaft, incidentally, is carried in ball bearings, thereby consuming a minimum of power in friction loss.

The disk coming in contact with the periphery of the flywheel first near its own center, starts the wheel rotating slowly, accelerating it as it travels down with the screw it is turning and to which it is attached, which brings it spirally to the outer edge or full diameter of the disk, where maximum speed is attained.

The action of this drive is such that the ram is producing pressure through much of its travel; the effect being to fill all recesses through flowing in of the metal until the full cumulative force of the blow is reached at the end of the stroke, delivering the entire inertia of the rapidly revolving flywheel, brought

limited principally by the activity of the operator in loading blanks or the capacity of the furnace.

The machine is not affected by variations in the size of blanks, but will produce uniform work with regularity, as it has no dead center to pass with consequent tendency to stall. Should the operator be careless in placing work in the machine or leave any tool or other obstruction on the die, conditions which would probably break the ordinary power press and would interfere with the proper operation of the percussion press, the latter will reverse automatically without damage to itself or the die.

The percussion press is capable of wide variations of blow through variations in speed to suit different requirements of the work in hand. In building these machines for single purpose operation, special consideration can be given the relation between the lead of the driving screw and the amount of speed or driving force desired in the final blow. A steep lead will accelerate faster but reduce the effective energy for the final or driving blow.

On the subject of proper analysis of brass suitable for handling by this method, it has been found that 55 to 62 per cent of copper and 38 to 45 per cent of zinc or an average of 60 to 40 per cent will produce very satisfactory work; the lower percentage of copper producing work of higher tensile strength but lower elongation, and vice versa. In some cases a very small percentage of lead up to 5 per cent has been found desirable. It has been found, however, that other mixtures are not sufficiently ductile, or will disintegrate in heating. Blanks should be heated in oil or gas furnaces to temperatures ranging from 1400 to 1600 deg. Fahr.

There are two types of dies commonly used; those

which entirely inclose the blank, and those of the type as used in drop forging. Dies of the inclosed type are subjected to tremendous hydrostatic pressures and should consequently be designed with sufficient wall strength to withstand this pressure. This type of die will produce a clean, uniform forging, free from fins. The drop forge type of die will show a fin or flash on the product, which will have to be passed to a trimming operation.

Dies for work having a hole, closed recess or pocket must have the punch or pilot for producing this hole, made with a draft to permit of withdrawal from the work, regardless of the binding effect due to cooling. Further, in making dies due consideration must be made for shrinkage of the work; in other words, dies must be made oversize. Dies must be made of material which will not be destroyed by the constant insertion of hot blanks. Some have found the best material for the purpose to be tungsten alloy.

It has been found that heavy oil and flake mica make a desirable lubricant and cooling medium. Mineral lard oil is also used for this purpose. A jet of air, operated in conjunction with the automatic knockout on the machine, has been found desirable as a coolant, to

keep dies clean and clear of scale, and also to blow the work off the top of the die after the knockout has thrown it from the impression. Different methods of delivering blanks or slugs to the operator and work from the machine may be devised to suit conditions in different shops.

Other illustrations show some of the different varieties of work on which this method is used to prepare material for machine operations of finished product. These include acetylene welding tips and gas connections, phonograph parts, electrical connections, hand wheels, grease cups, tubes, etc.

The percussion press is being used also for handling many parts of nickel, copper, tin, etc. cold, the press being made in a wide variety of sizes, suitable for varying requirements. The Zeh & Hahnemann Co., in its experiments along this line, made some tests with crank presses. While these presses were eliminated for this class of work, due to their effect on the quality of the product, nevertheless the trouble from broken frames and crankshafts was overcome. The company developed an overload absorber attached to the side of the press. The percussion press, of course, does not require any such overload protective device.

STANDARDIZED REFRACTORIES*

Bureau of Standards Doing Pioneer Work—Points Way to Better Trade Conditions and Elimination of Waste

In co-operation with the Department of Commerce, of which Mr. Hoover is secretary, the bureau of the budget has created by executive order a federal specification board, with Dr. W. S. Stratton, director of the Bureau of Standards, as chairman. This board has done some work on drafting specifications for various types of refractories. While it has made progress, it is greatly handicapped by the reluctance of various manufacturers of refractories to divulge information concerning their processes of manufacture. The bureau believes that if these men could be shown where it was to their advantage to put their cards on the table, they would assume a totally different attitude toward the activities of the bureau.

Many tests have been made and the results of much of this work would be available except for the fact that, beyond general conclusions, they are held as strictly confidential. The Refractories Manufacturers' Association has made tests and records of performance. These results are held confidential. The Bureau of Standards has made a valuable investigation in which the properties of something like 70 brands of fire brick were determined, but these results also, so far as names of the brands are concerned, are held as confidential.

Where the Buyer's Ignorance Hurts the Seller

For a long time the thought has been that the user will not pay the price for the quality, workmanship and uniformity that he is demanding in refractories. The fault is laid against the door of the big users, who are charged with so lacking in co-ordination between the purchase office and the production and accounting departments that they pay no attention to the effect of the quality of refractories on the cost of a ton of steel or whatever their product may be. It is urged that it is next to impossible to make accurate comparisons of the service of similar kinds of fire brick. Thus the purchasing agent cannot be blamed

if he solves his problem by driving as hard a bargain as he can.

Another Case Where Education Pays

Users refuse to pay a premium for superior quality, because they have no way of knowing they are going to get it. They may not even know when they do get it. With some co-operation from the manufacturers of refractories the Bureau of Standards, it is emphasized, can be of great service in providing the yardsticks with which to measure the properties and indirectly the values, at least relatively, of the different grades of refractories. The bureau has been paying a great deal of attention to the higher grades and possibly losing sight of the valuable properties of the less refractory grades. Here again is believed to be an opportunity for the elimination of waste by promoting, by educational methods, an appreciation of the superior qualities of what we are making and selling as second quality brick. It is wasteful to use brick made from our highly refractory clays where less refractory bricks would give better service, and it is only by educational methods that the advantages of the special qualities of the grades that are not highly refractory can be capitalized.

Building Warehouse in Long Island City

Egleston Bros. & Co., 166 South Street, New York, iron and steel jobber, is building a new warehouse at Borden Avenue, Mount and School Streets, Long Island City. The contract, which is being handled by the Austin Co., Cleveland, will probably be concluded by October. The warehouse, which will front on three streets, will be about 200 x 225 ft. and will be thoroughly equipped with modern machinery. A siding for seven freight cars connects with the Long Island Railroad. Three electric overhead traveling cranes, two 5-ton and one 10-ton capacity, have been purchased and two more of 3-ton to 5-ton capacity will be purchased later. The company is also negotiating for the purchase of shears, saws and other machinery. The new warehouse, besides permitting the maintenance of a larger stock of bars, plates, structural material, black, galvanized and blue annealed sheets, cold rolled shafting and screw stock, will enable the company to carry in stock and cut structural pieces up to 60-ft. long and other large pieces of material.

Witherbee, Sherman & Co., have appointed Freyn, Brassert & Co., Chicago, consulting engineers for the construction of their new blast furnace at Port Henry, N. Y.

*This article, abridged from a paper by W. A. Hull, secretary of the refractories section, Bureau of Standards, before the Refractories Manufacturers' Association in Chicago, shows how the Department of Commerce, through the Bureau of Standards, is endeavoring to be of specific service to the industry. The example may suggest a use of its facilities to manufacturers not yet acquainted with the co-operation it offers. The article is published by permission of the director of the Bureau of Standards.

Use of a Blast Meter in Foundry Practice

Measurement of Air Blast Volume Important in Cupola Control—Methods of Measurement

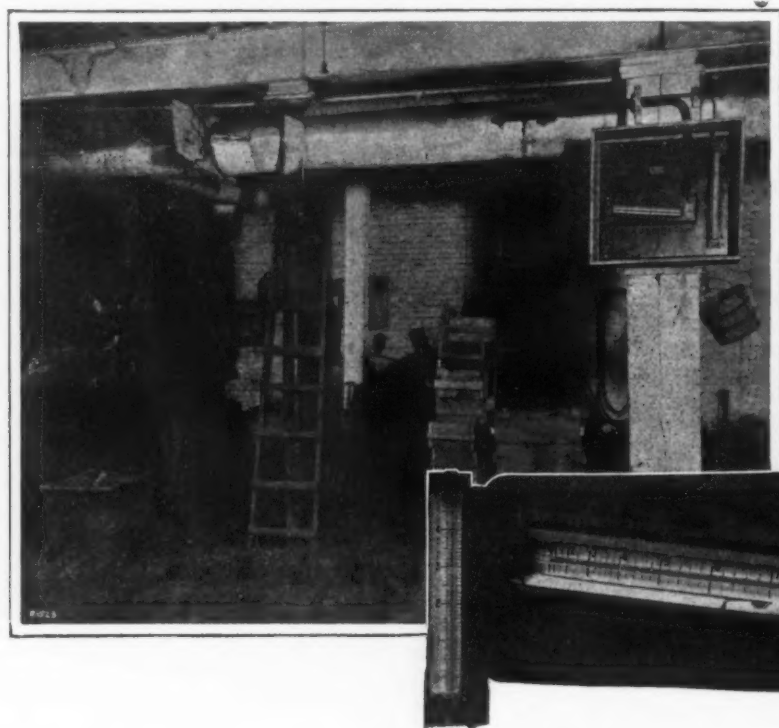
BY LOUIS L. VAYDA*

WHILE air, or at least its oxygen, is absolutely essential in the burning of any kind of fuel, different amounts of air with the same amount of fuel will bring different results. Dr. Richard Moldenke said to the Southern Metal Trades Association:

"That blast volume is most important will be understood from the following: the oxygen of the air blown into the cupola combines with the coke and evolves the heat necessary to melt the iron. It is essential that this combustion of the fuel be as complete as possible,

Thus there is a happy medium of air supply which will give the best results, save fuel, and in some cases increase the life of furnaces. This part of the subject remains the same, whether it be a boiler, open-hearth or cupola furnace. In the one case, the air supply is induced by the draft in the stack; in the other, it is supplied mechanically by means of a blower.

Where large volumes of a gas are to be measured, the old type of station meter is being used by some gas companies, as the size of a house meter for the



Connections to the Blast Main of the Instrument (Shown in Detail Below) Are Simple. This is the inclined form, used when accurate readings are required

so as to convert the carbon into carbon dioxide gas. A pound of carbon in the fuel will yield 14,500 heat units when burned to carbon dioxide. However, this gas is able to unite with incandescent carbon and form another gas called carbon monoxide and, if allowed to do so, the heat units produced by the pound of carbon in question will diminish to 4400. The other 10,100 heat units are lost by being locked up in the new gas, which later burns as it is met by the air drawn in at the charging door. Thus about two-thirds of the available heat of the fuel will be wasted and dissipated in the atmosphere if complete combustion does not take place in the cupola."

This abstract explains well the condition due to lack of air. The other condition, excess air, is just as bad, for the ultimate result of combustion is carbon dioxide (CO_2). To get this, each part of carbon in the coke must combine with two parts of oxygen.

If there are more than two parts, those in excess must also be taken through the furnace and heated from room to furnace temperature, without doing any of the heating. In addition, since air is four-fifths nitrogen, which does not enter into combustion, that also will be taken along and heated from room to furnace temperature. The reduction of effectiveness of fuel from this cause is evident.

volumes flowing through the blast pipe would be prohibitive. This type, however, is also now being discarded in favor of a method which is the only suitable solution for measuring gas or air under varying pressure.

The first attempt to get an idea of the volume of blast to the cupola was to measure the pressure. The liquid in both legs of an open U-tube is subjected to barometric pressure. But when one leg is closed at the top and subjected to additional pressure, the liquid drops in the closed leg and rises in the other, the pressure being indicated by the difference (h) in the heights of the liquid.

A form of the U-tube which is rapidly gaining favor is the single leg gage, Fig. 1. The principle involved is the same as in the ordinary U-tube, the difference being that one leg is enlarged to such a degree as to act as a reservoir, and the visible change in liquid level takes place in the other leg only. The advantage of this type over the U-tube is that only one column need be read and the reading is direct, eliminating the necessity of taking the difference in the columns.

First attempts to learn the volume of blast to the cupola by the use of the pressure were by making a flush connection into the wind box or blast pipe, which in turn was connected to the U-tube or single leg gage. It was thought that this pressure was an indication of the volume. It is true that the volume increases with the pressure, providing the resistance offered by the

*Bacharach Industrial Instrument Co., Pittsburgh. Mr. Vayda's contribution is an abstract of a paper presented before the Pittsburgh Foundrymen's Association.

Fig. 1. Single-Leg Pressure Gage or Manometer

Fig. 2. Types of Orifice Used for Measuring Rate of Flow

Fig. 3. Recording Pressure Gage, Run by Clockwork

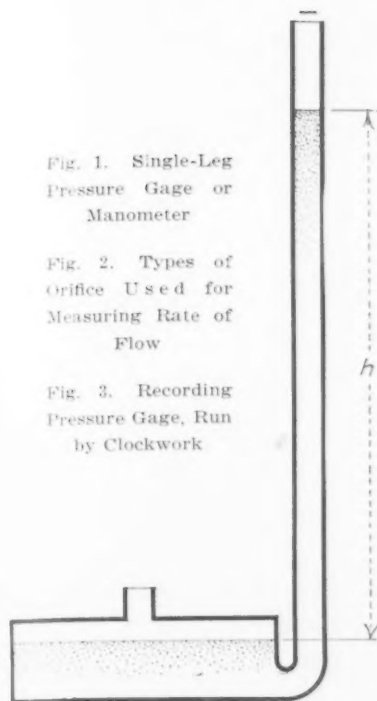


Fig. 1

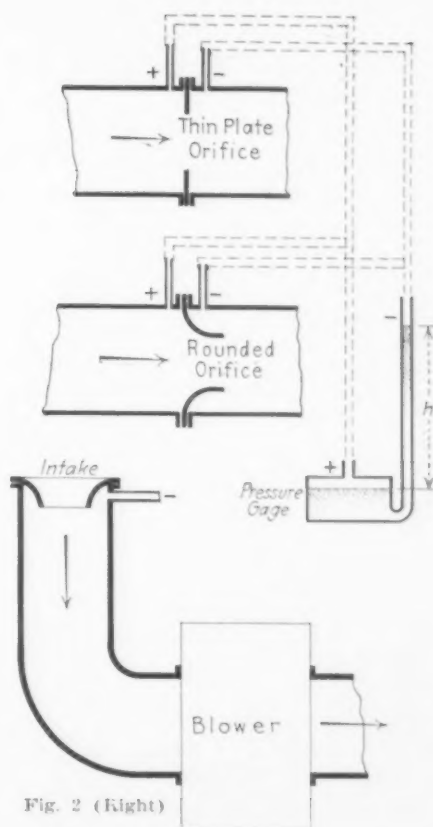


Fig. 2 (Right)

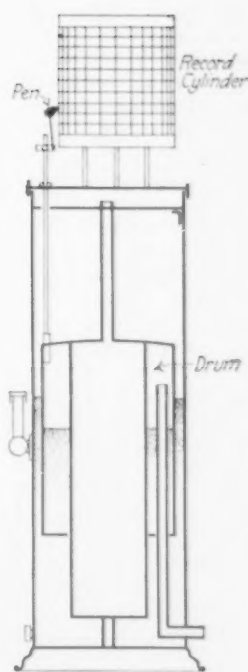


Fig. 3

cupola to the wind flow were always to be the same.

This, however, is not the case—the resistance varies in many ways. The nature of the coke is one factor, the nature of the charge another. Even during the same heat the resistance varies considerably at different periods. The result is, therefore, that when the pressure is most the resistance against the flow is greatest and the air delivered to the cupola the least. By use of a fan type of blower and a pressure gage in the blast line between the blast gate and the fan it may quickly be seen that the pressure will be the most when the blast gate is closed entirely, allowing no flow of air.

The simplest way to determine the volume of air flowing is by the use of the Pitot tube. Here the impact of the air against the mouth of the tube is the indication of the velocity of the air. But in addition to the impact pressure the pressure existing in the blast pipe also enters the tube. This is neutralized auto-

matically by making a flush connection in the blast pipe at a point close to the bent tube, and connecting this to the other side of the single leg gage.

To figure velocity from such a gage reading the following is necessary: As an example let us assume that water was used in the gage, and the reading was 4 in. Take the square root of 4, which is 2, and multiply by a factor, 66. The result will be 132 ft. per second. This applies under standard conditions. Knowing the velocity, it is necessary only to multiply it by the area of the blast pipe in sq. ft. to get the volume in cu. ft.

As the maximum pressure created by the impact of the air against the mouth of the bent tube is usually below 1 ounce, an accurate indication cannot be had on the single leg gage unless it is magnified. This is done by inclining the glass tube of the single leg pressure gage, so that the difference h , although small, is expanded over a scale of 10 to 15 in. Such an arrange-



In This Case a Recording Instrument, Set Out of the Way Against the Wall, Is Used. The small tube connections to the blast main are carried along the ceiling

ment, enabling one to read the pressure within 1/350 ounce or 1/5600 pound, is shown in one half-tone.

In cases where the Pitot tube is not practical, orifices as shown by Fig. 2 may be used. The difference in pressure on the two sides of the orifice is proportional to the rate of flow through them, and is measured in the same way as in the Pitot tube. Each type of orifice has distinct advantages that enable one to select the most suitable for any installation. The thin plate type is easy to install and cheap, while the rounded or standard orifice is a bit more accurate under varying conditions. The orifice installed at the intake to the blower may be recommended when the other two methods are not practicable, and it requires but one connection, the reason being that one end is open to barometric pressure. The one connection at the gage would also be left open to barometric pressure.

Before these devices are practical and usable to good advantage in a foundry, a number of refinements are necessary. The gage should be inclosed in a dust proof, solid metal case. The two connections should be brought together in a combination valve that will open both simultaneously to the lines going to the Pitot tube or orifice. This is necessary to prevent blowing out the operating liquid from the gage, for the maximum reading of such a gage is below 1 ounce and the pressure in the blast pipe is usually over 10 ounces.

A Useful I-Beam Chart*

While I-beams are much used these days, they will certainly be used more and more, as the I-beam is

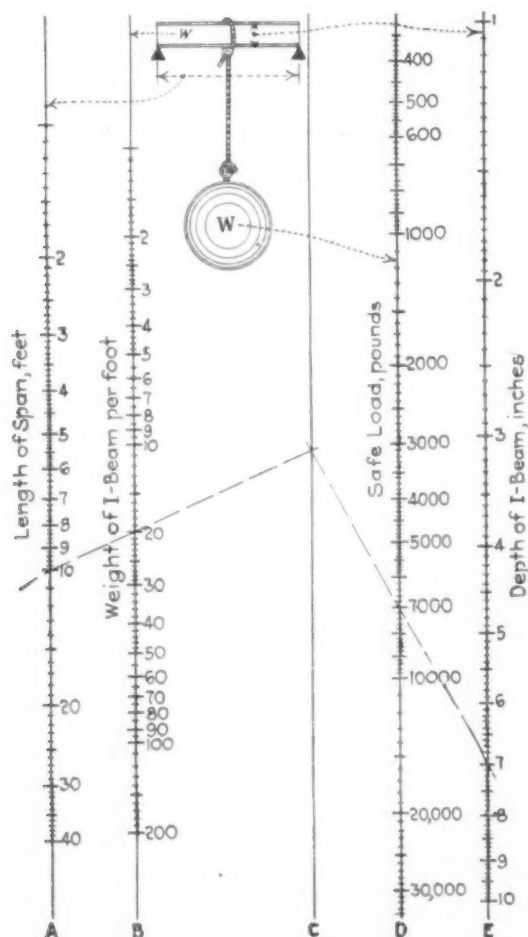


Diagram Showing Use of Chart

the lightest and most economical steel beam for most purposes. Inasmuch as a concentrated load, as shown in the sketch, represents the very worst condition, requiring the largest beam for a given load, this chart is based upon concentrated loads, for the sake of safety.

*Copyright, 1922, by W. F. Schaphorst, M.E., 45 Academy Street, Newark, N. J.

The scale should be graduated to read directly in cu. ft. per min. Provision should also be made for convenient filling and draining of the gage without disconnecting the pressure pipes. Means should also be provided for an easy check and adjustment to zero.

Pitot tubes should be compact and of such design that they may be easily installed. They should have large openings that will not clog. A stuffing box should also be provided, to facilitate accurate adjustment in the blast pipe. Orifice sizes and shapes must be accurately figured for each case. Rounded or standard orifices must be very carefully made, as the shape is a function of its accuracy.

Some cupola operators desire recording instruments. In these, the movement of the bell indicates the difference between the pressure under it and the barometric pressure. This movement is transferred onto a chart by means of a rod, one end of which carries a pen which makes the graphical record, as shown in Fig. 3. The chart is rotated by a clock movement. By the use of various liquids and by altering the design somewhat, such instruments can be made to read

accurately pressures from $\frac{3}{10,000}$ lb. up to 25 lb. As

no periodic calibration is needed of such instruments, the readings will be at all times reliable.

The wavy arrow lines running from the sketch to the vertical chart lines show at a glance just what each chart column means. Thus Column A gives the length of the span in feet and includes all lengths up to 40 ft. Column B gives the weight of the I-beam in lb. per ft. and includes all weights up to 200 lb. Column D, giving the safe load of the I-beam in pounds, varies from 400 to 30,000 lb. Column E gives the depths of beams in inches from one to 10 in.

To show how the chart is used, suppose that a weight of 4000 lb. must be supported. A 7-in. I-beam weighing 240 lb. is available. It is 12 ft. long and therefore weighs 20 lb. per ft. The minimum distance between supports that can be obtained for the lifting operation is 10 ft. Is the I-beam strong enough to lift the 4000 lb. load?

The dotted lines drawn across the chart show how the problem is solved graphically. Run a straight line through the 10 ft. (column A) and the 20 lb. (Column B) points and locate the intersection in column C. Then from the intersection in column C run over to the 7-in. (column E). The intersection through column D shows that the I-beam will support 7000 lb. Since the load to be lifted is only 4000 lb. the beam is amply strong. In fact, the reader can easily find, by applying the chart, that a 4-in. I-beam, all other conditions being the same, would safely support the load of 4000 lb.

Similarly, it is easy to ascertain the maximum allowable span when the factors in columns B, D and E are known. Or, the necessary weight per ft. of I-beam may be determined when the factors in columns A, D and E are known. Lastly the depth of beam is determinable when the factors in column A, B and D are known.

For loads that are "uniformly distributed"—not concentrated—the safe loads in column D may be multiplied by two. Thus, the above described beam will support a uniformly distributed load of 14,000 lb., or 1400 lb. per running foot.

Note: While this chart should give correct results for standard I-beams, within a moderate range of depths and weights, caution should be exercised in extending it to beams of exceptionally high or low weight per foot of length.—Editor.

The Charcoal Iron Co. of America on June 5 resumed the operation of its plant at Ashland, Wis., which had been shut down fourteen months. The Ashland plant employs 600 men, including 150 blast furnace operatives and 450 in the charcoal kilns and alcohol distillery, besides many employed in the forests near Ashland to supply wood for the kilns.

Inquiry Into Merger of Steel Companies

Proposed Organization of North American Steel Co. Made
Excuse for Prolonged Examination of Witnesses
by Lockwood Committee

THE Lockwood Committee of the New York State Legislature devoted the last three days of last week to an inquiry into the North American Steel Co. merger and other steel company mergers recently talked of. Samuel Untermyer, counsel for the committee, examined at length Judge Gary, chairman United States Steel Corporation; John A. Topping, chairman Republic Iron and Steel Co.; A. C. Dinkey, president Midvale Steel & Ordnance Co.; Mortimer L. Schiff, of Kuhn, Loeb & Co., bankers; Thomas L. Chadbourne, the lawyer who promoted the three company merger, and others.

Throughout the examination of witnesses, Mr. Untermyer, with his great skill, attempted to make witnesses give testimony tending to show that the organization of the North American Steel Co. will have a tendency to create a monopoly in structural steel and be detrimental to the business interests of the country. Mr. Untermyer tried to get witnesses to say what he wanted them to say. For example, in examining Judge Gary, the attorney referred to the Steel Corporation as a "benevolent despotism," and when Judge Gary objected to the word "benevolent," saying that he would prefer "reasonable," Mr. Untermyer endeavored to link the two words, describing the Steel Corporation as a "reasonable despotism," but Judge Gary did not use that expression.

Mr. Untermyer was extremely severe in his second examination of Mr. Topping and Mr. Dinkey, although, as they explained, the arrangements in regard to the formation of the North American Steel Co. had not been completed when they first appeared on the stand

and for that reason they were unable to give the details, which were afterward announced.

The taking of testimony, Saturday, developed into a fiery controversy between Mr. Schiff and Mr. Untermyer. Mr. Schiff accused the committee's counsel of trying to put words into his mouth and insinuating that Kuhn, Loeb & Co. were interested in manipulating the stock of the new merger. Here is a sample of the "war of words," following the statement by Mr. Untermyer that Mr. Schiff would have to take the chance of going to jail.

THE WITNESS: All right, I will take that chance, and you will appear in my company.

MR. UNTERMYER: Just a moment, I think not, this time.

THE CHAIRMAN: If you cannot answer, Mr. Schiff, you will state so.

THE WITNESS: Mr. Untermyer won't permit me to answer questions. He twists words in my mouth.

MR. UNTERMYER: No, I cannot get in your mouth. If I could, I would close it.

There was also a spirited controversy between Mr. Untermyer and Mr. Chadbourne because the latter refused to produce certain documents which he regarded as confidential. Mr. Chadbourne testified that if a merger went through, and the stock sells at \$43 a share, he would receive approximately \$1,000,000 as his compensation, but that there would be no compensation if the merger failed. It was also developed that Kuhn, Loeb & Co.'s share of compensation would be about \$2,000,000, and that the firm is to be paid 15 per cent commission in addition on the profit of the sale of stock.

The investigation will be continued to-day.

Judge Gary on Steel Corporation Policies

Judge Gary, chairman United States Steel Corporation, took the stand Friday morning. Mr. Untermyer, in the beginning of his examination, delved into figures regarding the capitalization of the company, amount and division of the various classes of stocks and bonds, profits, etc. In answering most of these questions, Judge Gary read from the last annual report of the company. He dwelt at some length on the question of methods of accounting, as shown in the Steel Corporation reports. He asked Judge Gary this question: "You don't consider sinking funds a proper charge against net earnings, do you; that is a payment on account of the capital, isn't it?" The answer was, "Well, you see how the books are kept." The colloquy continued:

Q. Yes, but Judge Gary, won't you answer me? You don't regard a sinking fund payment on the retirement of bonds as a charge against net earnings, do you? A. From the standpoint of the accountant I should say yes.

Q. Would you say that the money that is paid out of net earnings, towards reducing the debt of the company on its bonds is a charge against its net earnings; or is it a payment out of net earnings, towards the reduction of indebtedness? A. That is probably what it is.

Q. Judge Gary, it has been stated here that the United States Steel Corporation, by reason of certain factors growing out of this consolidation, and its great strength, and the position of its plants, its transportation facilities, and other matters, has a differential in its favor estimated at from \$3 to \$5 per ton over its competitors. A. You mean because of its material as compared with others—I mean finished material.

Q. What, in your judgment, is the advantage—I am

taking all advantages now—including cost of delivery? A. In my opinion \$3 would be the maximum.

Mr. Untermyer then asked many questions regarding the railroad lines owned by the Steel Corporation. Leading up to the question whether such ownership does not give a large advantage over its competitors, Mr. Untermyer asked this question: "Do you think that with an industrial corporation there is any more justice in its owning transportation lines in interstate commerce than a transportation company owning mining properties? The answer was, "I dislike to make comparisons, Mr. Untermyer."

Q. That is the crux of the thing, the comparison? A. I think they are justified in owning them.

Q. Is not there a manifest advantage over your competitors in your ownership of interstate transportation? A. If you refer to the mining properties, I would say, no, Mr. Untermyer, and I will tell you why, if you care to have it.

Q. Then if there is no advantage whatever in the ownership of the transportation companies, there would be no objection, would there, to divorcing them? A. I think there would be.

Q. There would be objection? A. I think there would be.

Q. Do you think your company would object? A. I think so.

Q. In times of great pressure, you quite realize, do you not, that the control of these transportation companies gives the Steel Corporation the opportunity of giving more prompt deliveries and preference in all the facilities? A. I don't think it does.

Q. If there is no advantage in the ownership of these transportation companies why are not you willing that they should be divorced, and give your competitors whatever

advantage there is in the equal access to these properties? A. If you will allow me, I will try to tell you briefly why. In the conduct of such a large mining and transportation business as we do in the Northwest, it is essential that the very best service be rendered by the railroads, and if it had to depend upon the will and disposition of an independent railroad whose services were largely devoted to the general public, it is probable that the service would not be so good. Now if that applied with equal force to the independent mining and manufacturing companies, in practice, of course, I might have a different opinion. It does not, and I do not think it would be allowed if it was attempted. By that I mean to say, I think the independent mining companies and manufacturing companies in the Northwest have just as good service from our railroads as we get for our manufacture. I do not think there has ever been any discrimination or any claim of discrimination by any one.

Q. Then you are of the opinion that your ownership of this means of transportation is a substantial advantage to the Steel Corporation? A. Yes, I think it is.

Q. Of which you do not care to deprive yourself—and that is so because they are better managed and better equipped? A. Yes, that is probable.

"Ruinous Competition"

Judge Gary stated that the Steel Corporation operated during 1921 at an average of about 45 per cent. His opinion was that the independents did not average more than a 30 per cent operation. Mr. Untermeyer asked:

"When you were down to 45 per cent of your capacity, is it or not a fact that if you cared to indulge in a campaign of ruinous competition you could take the business away from the other people? A. Oh, no.

Q. Not even with your differential of \$3 a ton? A. No, we cannot.

The Morgan Influence

Mr. Untermeyer then attempted to show that there is a close connection between the Steel Corporation and J. P. Morgan & Co. He began by asking Judge Gary as to the amount of money which the Steel Corporation carries on deposit at the Morgan bank. Judge Gary stated he believed about \$8,000,000 was on deposit there most of the time, Morgan & Co. paying 2.6 per cent interest. Asked whether the Steel Corporation had been carrying as much as \$25,000,000 to \$30,000,000 at the Morgan Bank, Judge Gary replied that he did not think so. Asked whether the Steel Corporation lends money in Wall Street, Judge Gary replied "no." Mr. Untermeyer then said:

"Morgans lend the money, they lend your money and get anywhere from 4 to 6 or 8 per cent as the market permits, don't they? A. Mr. Untermeyer, I don't know—I can't answer. Q. Don't you think that is a very vicious practice of a great corporation keeping its money with private bankers who simply use it for their own purposes and make profits on it and deposit it in their own banks and get control and power in their banks through the use of the moneys of these corporations?

A. All the banks in which we deposit our money do the same thing, I suppose. They make some money out of it.

Q. But you understand that banks are in different positions from private bankers in that respect—don't you think so? A. Perhaps so.

Q. You know that that practice was criticized in the money trust investigation? A. The Pujo investigation?

Q. Yes, the Pujo investigation. A. I remember that investigation in a general way.

Q. By the way, Judge Gary, the Morgan firm virtually names the directors of the Steel Corporation, does it not?

Q. Now, let us see about it. Do you remember Mr. Morgan was testifying before the Money Trust investigation? A. No, I do not. I would be very much surprised if he testified to that.

Q. Well, he did in effect? A. That is that he did it then or that he did at the beginning?

Q. No, he did it then. Who names the directors? A. Who names them?

Q. Yes, in fact, not in theory and not in fancy, but who names them? A. The stockholders.

Q. You know the stockholders do not name them? A. You mean what individual or individuals?

Q. Yes. A. I think I will have to admit and perhaps claim that I do more of that than anybody else and always have.

Q. Do you do it in consultation with whom? A. All the directors.

Q. How many of the Morgan directors are on your board? A. One.

Q. One now—there were more? A. There were at the start.

Q. And for many years? A. Well, yes.

Q. Which is the one now? A. J. P. Morgan.

Q. And as vacancies occur in the board you designate the directors, in consultation with Mr. Morgan, do you not? A. Not any more than the other members of the finance committee.

Q. How many members are there of the finance committee? A. Seven.

Q. Now, don't you know, Judge Gary, in point of fact, that these directors are really named— A. Are what?

Q. That these directors are named by you and Mr. Morgan or by Mr. Morgan after consulting you? A. I do not. That is not a fact.

Q. Have you ever named a director without the assent of J. P. Morgan & Co., and if so, give us his name? A. I do not think I have—or without the assent of every other member of the finance committee.

Mr. Morgan then went into the question of structural steel. This question was asked by Mr. Untermeyer:

"Having as you say, a differential in your favor of \$3 a ton, these independents are at your mercy, are they not?" A. I don't think so.

Not Living by Grace

Q. Now, isn't it a fact—suppose instead of this being a kind and eleemosynary despotism, if you please, or control, it were a ruthless one, and suppose you chose to exterminate your competitors by foregoing this \$3 or \$5 a ton differential, it would not take long to do so, would it? A. I do not think that is a practical question.

Q. But that is a logical question; if you have \$3 a ton or \$5 a ton in costs over your competitors and you have the capacity to supply the market, why then he is living by your grace and favor, isn't he? A. No, I don't think so.

Q. You don't think so? A. No, I do not.

Q. Then you do not believe in arithmetic? A. I think I do.

Q. Take for instance the time when you had only 45 per cent of your capacity employed in which you made, as the figures show, more money than when you had double the capacity—if you had chosen then to fill to your capacity, with your differential in your favor, by underbidding and bidding for the business, your competitors could not have existed, could they? A. Why do you think we did not do it?

Q. Because I think you thought it was bad business to do it. A. Do you think—

Q. I am not assuming that you should have done it. A. But if we ruthlessly drove the others out of business, we would have been in precisely the same position that some of these other companies were in that were dissolved by Government law suits.

Q. I see; you had your eye to that law suit all the time, did you; you were in the courts and you knew you had to behave yourself in order to get the favor of the courts, and you would have done so anyway? A. For two good reasons; first, because it was right to do it, and secondly, because we had to do it.

Q. They are good reasons. You had to do it because of your pending litigation? A. That was disposed of.

Q. Suppose the United States Steel Corporation, in the evolution of time, with its great and increasing power, goes into the hands of men who do not practice a benevolent despotism, but a ruthless despotism, then it has these men absolutely at its mercy? A. That word "benevolent" in there—I don't know that I—

Q. I mean by benevolent despotism, I mean a reasonable and sensible one. A. I see they would have an advantage, and perhaps might carry it further than you and I would think they ought to carry it. I would not like to go further than that, because I remember in the Government case under a very severe cross-examination, many of the independents testified that whatever happened, they could survive and thrive in spite of the United States Steel Corporation.

Q. You did not expect them to admit they could not, did you? A. No, I expected them to tell honestly what they could do.

Mr. Grace on Foreign Trade

Eugene G. Grace, president Bethlehem Steel Co., was on the stand Thursday afternoon. In answer to questions by Mr. Untermeyer, Mr. Grace said he did not know what the total advantage of the United States Steel Corporation is over the independents. He had not made any estimates. He said that the capacity of the Bethlehem Steel Co. is about 3,200,000 tons of ingots per year.

Returning to consideration of the foreign business, Mr. Untermeyer inquired as to the relative prices in

the United States and abroad. This colloquy followed:

Q. Do you sell these products cheaper abroad than at home? A. In some instances I should expect—

Q. Well, ordinarily? A. It depends entirely on the condition of the foreign market.

Q. If that is so, what do you need with a protective tariff? A. I am not qualified to pass on the tariff question.

Q. You know there are heavy protective tariffs on steel products? A. I don't know the tariff schedules at all.

Q. But you say you sell in foreign markets cheaper than at home? A. At times we have.

Q. But ordinarily do you have the same price? A. As far as I know the foreign prices are not based on domestic prices.

Q. I did not ask you what they are based on. A. Not the same, to my knowledge.

Q. Do you sell at the same prices ordinarily abroad, as you sell at home? A. Not to my knowledge, we do not.

Q. Well, do you sell higher, or lower, abroad? A. Higher, lower, or the same; whatever you can get.

Mr. Untermeyer Praises the Steel Corporation

In a statement following the examination of Judge Gary, Samuel Untermeyer, counsel for the committee, said:

"Mr. Chairman, I want to make another statement in connection with these pending mergers. It would be manifestly unfortunate if the impression should go forth that this committee has formed any opinions whatever, or has any plan of action, with respect to these proposed mergers.

"While these mergers will unquestionably have the effect of limiting to some extent the sphere of competition in structural steel, whether or not they will restrict competition to the extent that is practically or seriously injurious to the business, is a subject on which we, I think, have not been able to form any opinion. The question of the legality of these mergers, which are inter-state affairs, is one which I think will have to be left to the Federal prosecuting officers to determine, and will not be one of which the committee is likely to take any greater notice than that which comes from the publicity given to the evidence here disclosed.

"Of course, there is this situation: As long as the United States Steel Corporation maintains this dominating situation in the trade through its differential of from \$3 to \$5 a ton, so long as these other com-

panies are living by the grace of the United States Steel Corporation, it does not seem to make very much difference whether these few small concerns merge or do not merge, from the point of view of competition.

After all, such a differential puts the entire steel business of the country right in the hands of the United States Steel Corporation to do with as they choose. Heretofore they have pursued an enlightened policy, showing a great deal of vision, and at a great deal of profit, and the Supreme Court of the United States has said, much to the surprise of a good many of our profession, that that was not a combination in restraint of trade under the anti-trust laws, and that is the law of the land today.

"The evidence here discloses a phase of the steel business as applied to structural steel, and to other lines of steel, that is quite startling and puts the Steel Corporation in the light of really permitting the existence of these other companies.

"What I want particularly to correct is the impression that seems to have gone forth that this committee is on a hunt looking to the enjoining of these mergers. This committee has reached no conclusion on the subject. It is simply gathering the facts. What it will or will not do, is a matter for further consideration."

Mr. Grace said he did not know whether the United States Steel Corporation and the Consolidated Steel Corporation are selling at the same price abroad.

Asked as to how competitors are able to live except when the demand is greater than the United States steel can supply, Mr. Grace replied, "I have seen some pretty lean years in the steel business."

Asked whether he meant to say that the steel business is not a good business, Mr. Grace replied, "I think it is an excellent business; I am proud of it."

Mr. Grace said that since the decision in the Hardwood lumber case, the Bethlehem Steel Corporation had withdrawn from all associations, except the National Steel Erectors, by advice of counsel.

Asked as to when the Bethlehem-Lackawanna steel merger is to be completed, Mr. Grace replied, "Just as soon as we can go through the formalities and have the approval of our stockholders."

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Mr. Topping Tells of Merger Formation

Mr. Topping said that the Republic Iron & Steel Co. is a party to the proposed merger. Negotiations were started in October last. He called the first meeting by request of Thomas M. Chadbourne, who represented the Midvale Steel & Ordnance Co. as general counsel. When asked as to who are the parties to the proposed merger Mr. Topping said "The parties are Midvale Steel & Ordnance, Republic Iron & Steel, the Inland Steel Co., and there are two others that are still in the picture—the Brier Hill Steel Co. and the Steel & Tube Co. of America." He said that the Lackawanna Steel Co. dropped out before the negotiations were started in a serious sense.

Asked in regard to the withdrawal of the Youngstown Sheet & Tube Co., Mr. Untermeyer inquired whether it was because of the influence or the objection of J. P. Morgan & Co. Mr. Topping replied that he did not know that it was.

In reply to a question as to whether the United States Steel Corporation was told about the proposed merger and asked whether it would be agreeable to it Mr. Topping said, "They were not consulted." He afterward modified this statement to say that so far as he knew the corporation was not consulted.

As to details of the proposed merger, Mr. Topping said that it would be necessary to consult Mr. Chadbourne, who knew all about them.

As to the concerns now in the merger, Mr. Topping said that the ingot capacity is about 5,250,000 tons. The other two have about 1,200,000 between them.

Mr. Topping was examined at length in regard to the advantages of the Steel Corporation in manufacturing steel.

Steel Corporation Advantages

Q. What is the approximate differential or advantage of the United States Steel Corporation over the other companies? A. It will vary quite a little with variations in conditions. It fluctuates with freight costs and other things that affect the general cost of operation. It will run anywhere from \$3 to \$5 a ton.

Q. Wouldn't you fix it between \$4 and \$5 a ton, the advantage it has over its competitors? A. I think the wider spread would be more nearly accurate, covering the spread in the change of conditions.

Q. Covering the spread in the change of conditions you would spread the advantage of the Steel Corporation over its competitors at between \$3 and \$5 a ton? A. That is my estimate.

Q. The general impression is that it is from \$4 to \$5 a ton, isn't it? A. I couldn't say as to what the general impression is.

Q. Haven't you discussed it with your associates and men in your line of business? A. I never discussed it in a detailed way. In a general way it has been frequently discussed.

Q. What are the principal items that go to make up this great advantage in producing and delivery costs of United

States Steel over all of its competitors? A. I couldn't attempt to detail them. In a general, broad way I could state what I think.

Q. I mean the leading ones. A. The transportation advantages—

Q. Suppose you item them first. One, transportation advantages? A. Economy in operations through the larger tonnage, reduced overhead, efficiency in operation through the stimulation that comes from the competitive operation, advantages of massing production at strategic points for distribution, geographic advantages both in distribution and assembling raw material. Those would be the principal items.

Q. Now, under the head of transportation, what about this ownership of vast coal and iron deposits? A. We are equally situated in that respect, I think.

Q. All the companies? A. I think so.

Q. They all have as good and as accessible coal and as good and accessible iron ore, have they? A. I think so. I do not think they have an advantage there.

Q. On the transportation question, the United States Steel Company owns how many miles of railroad? A. I don't remember accurately, but in a rough general way I should say a thousand miles.

Q. When you figure from \$3 to \$5 per ton advantage or differential, you figure that on the ingot tons or do you figure it on the manufactured product? A. The finished product. That would be about 30 per cent off that tonnage finished—about 17,000,000 tons finished.

Q. Seventeen million tons finished? A. Yes, sir.

Q. So that on its total product it would have an advantage over its competitors in the markets of the world or in the markets of this country of from \$51,000,000 to \$85,000,000 a year. Is that right? A. I would think so.

Q. It could sell this product at from \$51,000,000 to \$85,000,000 less than its competitors, and lose no money? A. The competitors would lose if they attempted to meet that price.

Q. So that in point of fact the competitors of the United States Steel Corporation cannot compete at all, as at present situated, can they? A. I think that is correct.

Q. This merger that is proposed, is that intended to assist these competitors in competing? A. We think so.

Will Help in Competing

Q. Tell us in what respect you think it will assist the competitors in competing? A. It will give us somewhat more advantage than we now have in geographical location, distribution and efficiency of operation through greater tonnage, less business expense and less selling expense.

Q. You propose to put your securities on the market, do you not? This merger proposes to put its security on the market? A. We do.

Q. It proposes to issue a large amount of common stock that does not represent any physical assets, does it not? A. We do not.

Q. You propose to issue stock, preferred and common stock, only for the amount of the physical assets? A. When the final picture is complete you will find a company organized for the first time in history where the actual capital is less than a fair valuation of the product.

Q. Why do you say "for the first time in history"? A. Because the companies were organized with common stock, with little—

Q. Don't you know that the Harvester companies were organized with more than dollar for dollar in actual value? And that the common stock was subscribed for a dollar a share? A. I was referring to the steel companies.

Q. You know there were no physical assets for the preferred or common stock in the beginning, in the case of the steel companies, that the bonds covered all the physical assets? A. I do not, and I do not believe it. I do not think that was so.

Q. Do you not know that upon its own showing, when the Steel Corporation was organized, neither the preferred nor the common stock had any assets back of them, and now it has over 100 cents on the dollar back of them? You know that, don't you? A. I don't know that.

Corporation Assets

Q. Do not you know that to-day they have more than 100 cents on the dollar back of them? A. I don't know—they had no assets back of them when they were organized.

Q. You know the common stock was wind and water? A. Yes, I know the common stock was.

Q. That was only \$550,000,000; that has assets now of over \$100 a share, hasn't it? A. I would say worth more than that.

Q. But I say it has physical assets of a great deal more? A. I think it has.

Q. I think it has somewhere around 200 and some odd dollars a share of physical assets. A. I would say so.

Q. All saved out of the earnings, is it not? A. Yes, very largely.

Q. Besides paying dividends on it? A. Yes.

Q. It has been a pretty good paying business? A. Yes.

Q. Will you tell me— A. May I suggest to you one thought in that connection, Mr. Untermyer?

Q. Yes. A. Taking the average earnings of all the steel companies, even the steel corporation, their earnings won't compare very favorably with those of the trust companies and the banks of the United States.

Q. That is a statement which I challenge. A. I think you will find I am correct.

Q. Have you any figures to support it? A. I have not, but I have made that statement.

Q. Do not let us go into that. A. I thought you would be interested in that statement.

Why Competitors Live

Q. Let us get back to our own case: How is it, Mr. Topping, that if the United States Steel Corporation has the advantage in production of from \$3 to \$5 a ton over all its competitors that those competitors have been able to live and make money? A. They have not been living very well.

Q. They have not? A. They have not.

Q. Have you consulted the annual statements of those companies? A. I have consulted my own very frequently.

Q. And you don't think any of them have been living very well? A. Only one other company living fairly well, during the last year.

Q. Which is that? A. That is your company.

Q. Well, it is not mine. I have a very substantial interest in it. That has nothing to do with our finding out here what it is doing.

The Witness: Only two companies have made any money in the last eighteen months.

Mr. Untermyer: Mr. Chairman, may I state here that you know it is a matter of record in these proceedings, stated by counsel to this committee long ago, exactly what his interest is in the Bethlehem Steel Co.? Now, Mr. Topping, will you continue?

The Witness: I just finished my statement. There are only two companies that I know of who made any money in the last eighteen months—the Bethlehem and the Steel Corporation.

Q. You don't think the Jones & Laughlin company has made any money? A. I don't know that, but I don't think it has. It is a private corporation.

Q. You know, do you not, that over a period of ten years they have all made a great deal of money? A. I would not say they have.

Q. All right, Mr. Topping, answer me. You don't mean to say that they have not made a great deal of money over the last ten years, do you? A. I don't think they have made any excess amount—

Q. We won't discuss excessive amounts. A. They have not made a fair return, or hardly that in the last ten years.

Q. How is it these companies are able to earn a fair return—what you call a fair return on their money, on their investment—when the United States Steel Corporation is able to produce steel at from \$3 to \$5 an ingot ton less than the other companies? A. How? They have earned more money than we have.

Q. They have permitted the other companies to live, have not they? That is your idea? A. That is your statement.

Q. Is that your idea? A. It is not.

Could Reduce Prices

Q. If the other companies have earned a fair return on their investment over a period of years, not being able to produce within \$3 to \$5 a ton of what it costs the United States Steel Corporation to produce, the United States Steel Corporation could, could it not, earn a very fair return by reducing its prices from \$3 to \$5 a ton? A. And if they did they would put the other companies out of business.

Q. So they are taking that \$3 to \$5 so as not to put the other companies out of business; is that right? A. To save the other companies from—

Q. To save the other companies. A. I do not make that statement.

Q. I thought you said it. A. I did not.

Q. Are they doing it to save the other companies? A. I do not think so.

Q. You do not know why they are doing it, except to make money? A. I think they are in business to make money.

Q. And they really have got the whole steel business by the throat? A. They have a very decided advantage.

Q. They have the existence of all the other steel companies right in the hollow of their hand? A. I would not go quite that far.

Q. If they could produce from \$3 to \$5 a ton less than the other companies, then they have got the other companies in the hollow of their hands, have they not? A. Under certain market conditions, yes; certain other market conditions, no.

Q. Under what market conditions have not they? A.

When demand is away in excess of supply they produce only 45 per cent.

Q. When the demand is more than they can produce, then the surplus would go to the other companies, is that it? Won't you answer me? A. That cannot be answered yes or no.

Q. Yes, it can. Is it the fact that it is only when the demand exceeds the supply that the surplus would go to the other companies? A. That would be substantially so, on my statement, if they wanted the business.

Q. If they wanted to take it? A. Yes.

Q. They have increased their capacity largely in the last 10 years? A. In different lines they have, but not from an ingot standpoint any more than the country has grown.

Q. Do you know how much the ingot capacity has increased in 10 years? A. Their growth is about in the same proportion as the growth in the industries outside.

Q. I am trying to find out how many tons their capacity has been increased in the last 10 years, since 1912? A. Practically doubled, I would say.

Q. Isn't it more than double? A. I don't know how much more, but I would not be surprised it may be more than double.

Q. So if they should choose again to double their capacity, they are in position to wipe out every other steel company in the country, are they not? A. Well, I would answer that question by saying that when the demand was under the productive capacity of the country, they are in position to take the greater proportion of the tonnage, through their greater ability to produce at lower cost.

Q. But through their keeping up the price and taking in this \$3 to \$5 additional, the other companies are able to live, is that right? A. That is true if I understand your question, I think that is so.

Bethlehem and Lackawanna

Q. The Bethlehem company and the Lackawanna company together have as much ingot capacity as your five concerns? A. No.

Q. How much less would it be? A. I should think about 1,200,000 tons less.

Q. What is the Jones & Laughlin capacity? A. About 2,700,000, I think, if I remember it.

Q. Is that the only independent outsider? A. No, the Youngstown Sheet & Tube Co., one and a half million, and another corporation, close to a million and a quarter tons, and there are 30 or 40 other concerns scattered all over the United States with greater or less tonnage, mostly less—small producers.

Q. Would you say greater? A. No, I mean less.

Q. A good deal less; they are all small concerns, are they not? A. Small concerns, capacity running from 500,000 to a million tons.

Q. They do a local business, do they not? A. Well, some of them; it depends—

Q. Which of them do not do a local business? A. We are all more or less localized under existing freight rates, at present.

Q. That is not correct, is it? The Bethlehem company sells all over the country? A. I am not familiar with the Bethlehem distribution.

Q. Do not you know that they cover the country? A. I do not.

Q. Do you know whether they do or not? A. I do not; I have so stated; I do not know what the distribution is.

Q. Now, the Republic Iron & Steel is a combination? A. Yes.

Q. And it has not had very much advantage from consolidation, has it? A. The Republic Iron & Steel Co. was originally an iron-making company.

Q. It had been quite a cripple until the war? A. It had been a very sick baby for a good many years.

Q. Until the war set it on its feet? A. No, not until the war. Since 1896 I spent about \$40,000,000 in the rehabilitation of that property. It is no longer an iron company. Formerly it was a very sick baby, as I stated.

Q. How do you expect to get any substantial benefits out of autonomy? A. I have stated how, in the general sense.

Q. You mean distribution of manufacturing centers? A. Yes. To give you an illustration: Where there are four or five companies doing business in a dozen different cities in the Union, buying centers, where one of those companies maintain a big office, pay big office rents, and has traveling expenses, any one of these companies of the group five, could by a very small enlargement of the selling force, handle the sales product of the whole group and save an immense amount of office rent and other expense incident to selling operations.

War Time Rates

Q. Isn't it the fact that the rates now being charged by the United States Steel Corporation on transportation are the old war-time rates? A. They charge the same rates that other roads carrying iron ore charge.

Q. Isn't it a fact that these are the war-time rates? A. Correct.

Q. Isn't it a fact that the reduction that has been made in rates does not apply to them? A. It is.

Q. Why should not the reduction in rates, made applicable to all the rest of the country, and all other forms of industry, be made applicable to them? A. There is no reason why it should not, except that I think that the Interstate Commerce Commission, who are considering testimony in a suit for reduction in the upper Lake Rate Case—they have not decided that, and it is mere assumption for me to say what is in their minds, but I have an impression they prefer to decide that upper rate case on the merits, rather than to make it applicable to the common order issued by them.

Q. Doesn't the general order of the Interstate Commerce Commission reducing rates apply to everything except ore? A. It does. That is my understanding.

Q. I would like to know if you know why the reduction in the freight rates on ore should have been left out and everything else included? A. I do not know from any direct knowledge. I do know this—

Q. There has been a reduction in the wages of the men? A. If I may make this statement, I do know there is a suit pending in which we and many other independents are parties thereto, suing for a reduction in the ore rate, which involves the corporation carriers as well as the other carriers of iron ore, and that is before the Interstate Commerce Commission, and they have not rendered a decision.

Q. I quite understand that, but what I asked was whether the general reduction in wages on the railroads has not been made applicable to all railroads? A. It has, to my knowledge; that is my understanding.

Q. Isn't it a fact that while the Labor Board has reduced the wages of the men on these roads owned by the United States Steel Corporation almost contemporaneously with the general reduction of rates by the Interstate Commerce Commission, that in the case of these corporations owned by the United States Steel Corporation, while the Labor Board has reduced the wages, the Interstate Commerce Commission has not reduced the freight rate? A. That is correct.

Q. That looks a little unjust, doesn't it, on the face of it? A. If that should continue it would be very unjust.

Q. What is there now interfering with this merger going through, if anything—the merger in which you are interested? A. I cannot answer that question directly.

Q. Do you know of anything that is interfering? A. Nothing—I have no definite knowledge; no, sir.

Mr. Topping Subjected to Severe Cross-Examination

Mr. Topping was recalled to the stand Friday afternoon and subjected to severe cross-examination relative to plans for the merger which he had not disclosed in his testimony of Thursday. Mr. Untermeyer asked the witness to state the amount of capital at present contemplated for the new company and how it is to be divided and into what form of securities. To which Mr. Topping replied, "I cannot answer that question at present." Mr. Untermeyer then examined the witness as follows:

Q. When you left here, where did you go? A. I went to my office.

Q. Did you see Mr. Chadbourne? A. I did, late in the afternoon.

Q. And have you seen him this morning? A. I have.

Q. So that when you were here yesterday, as I under-

stand you, you did not know the basis of this consolidation or merger, did you? A. I could not, no.

Q. Answer my question, you did not know, did you? A. I did not.

Q. When did your board last have a meeting? A. On May 26, I think it was.

Q. Did you then have before you this tentative plan? A. I did.

Q. Containing the figures? A. I did.

Q. Did the board approve? A. It approved it as far as we were concerned.

Q. Did you approve its execution, the execution of that document? A. As far as we were concerned.

Q. You did execute it, did you? A. As far as our company was concerned.

(Continued on page 1641)

Iron Ores of the Adirondack Region

Paper Supplements That of Frank S. Witherbee Read in 1916
Before the Meeting of the American Iron
and Steel Institute

BY FRANK L. NASON

IN 1916 the American Iron and Steel Institute published a paper by Frank S. Witherbee, president of Witherbee, Sherman & Co., on "The Iron Ores of the Adirondack Region."* This paper leaves little to be said as to the known areal distribution of the ores and their amenability to a high degree of concentration. The estimate of 1,100,000,000 tons of available ore of milling grade, while conservative, is a rather arbitrary statement with few supporting facts. As to the amenability to magnetic concentration, this is also a more or less arbitrary statement with few supporting facts. This is not adverse criticism, nor is it intended to detract from the solid value of Mr. Witherbee's paper.

The present paper is really supplementary to the senior paper, giving supporting details as to the magnitude of the deposits, the general grades in iron, illustrations of their amenability to magnetic separation, and the general costs of mining and milling.

The salient facts in the body of this paper can be stated as follows: The total iron ore bearing area of the Adirondack region is, approximately, 10,000 square miles.

Of this total, there are approximately 1500 square miles of gabbro and other old intrusive rocks. The iron ores of this area are, so far as known, titaniferous. There are very many old prospects in this area, but, so far as known, the Sanford Lake deposits are the only ones of economic size. These deposits have fairly well proved 70 to 100,000,000 tons of crude ore with a possibility of 180,000,000 tons additional. This ore can be separated to yield concentrates with 56 to 60 per cent iron, 3 to 7 per cent titanium and with 0.004 per cent phosphorus.

The remaining area, 8500 square miles, are mainly gray gneisses probably of sedimentary origin and, probably, belonging to the Grenville series of white limestones, known sedimentaries. A total area of more or less productive mines covers about 250 square miles. This area is divided into six distinct sections, the Crown Point, Mineville, Ausable, Saranac, Lyon Mountain, Benson Mines and the Clifton Group.

There are at present three operating companies: Witherbee, Sherman & Co., the Port Henry Iron Co. (Mineville section), Chateaugay Ore & Iron Co., Lyon Mountain section. These three companies are equipped to turn out 1,500,000 tons of concentrates yearly with 61 to 68 per cent iron and from 0.2 to 0.004

per cent phosphorus. At least 750,000 tons of this output will be 61 to 65 per cent iron, phosphorus 0.01 to 0.004 per cent. If the market would absorb it, the finished product could be brought, within two years, up to at least 3,000,000 tons.

The crude ore in sight is about 186,000,000 tons, the prospective tonnage is 1,736,000,000 tons, including the Sanford Lake titaniferous iron ores.

The "gray gneiss" ores, nontitaniferous, are, in sight and prospective, 1,500,000,000 tons.

The magnetite in the gray gneiss ore is practically

chemically pure. That is, they contain the theoretical limit of 72.4 per cent metallic iron. The crude ores are granular and friable. This makes for high-grade milling, since, in crushing, the magnetite and gangue may be broken completely apart. Subjected to the action of magnetic machines, the concentrates are a high-grade product. In present every day practice, crude ores with a total of 25 per cent iron yield,

with 85 per cent recovery of the crude iron units, concentrates up to 68 per cent iron with phosphorus 0.01 to 0.004 per cent. Experiments show that from 15 to 30 per cent crude iron units, crushed to 73 per cent through 60 mesh, yield concentrates, the average of all meshes, as high as 70 per cent iron and 0.004 per cent phosphorus with 92 to 96 per cent recovery of the total crude iron units. It has been proved experimentally that, crushing through 150 to 200 mesh, 71 to 72 per cent iron concentrates with phosphorus practically eliminated, and a 96 to 98 per cent recovery of the crude iron units may be attained.

The 1,500,000,000 tons of nontitaniferous gray gneiss ores will, on the average, have a concentration ratio of 2.4 to 1.63 per cent iron concentrates. The yield of concentrates on this basis will be 625,000,000 tons. This is equivalent to an annual production of 6,250,000 tons annually for 100 years.

The 116,000,000 tons of gray gneiss ores assured will yield, on the same basis, a total of 48,340,000 tons, equivalent to a production of 1,500,000 tons of concentrates yearly for 32 years. This 1,500,000 tons is approximately the yearly production of fair business years. Compared with the Lake ores of 51.5 to 55 per cent, ton for ton, the Adirondack concentrates will contain from 12 to 18 per cent more iron. The unit freight cost is thus about 86 per cent of the unit freight cost of the Lake ores.

Based on sintered Adirondack concentrates, there is, at present quoted prices, a differential of about 33 per cent in favor of lake ores.

The writer can see no warrant for this differential.



Shrinkage Stope Mining Operations in Mine of Chateaugay Ore & Iron Co., Lyon Mountain, N. Y. The ore body is 30 feet or more thick

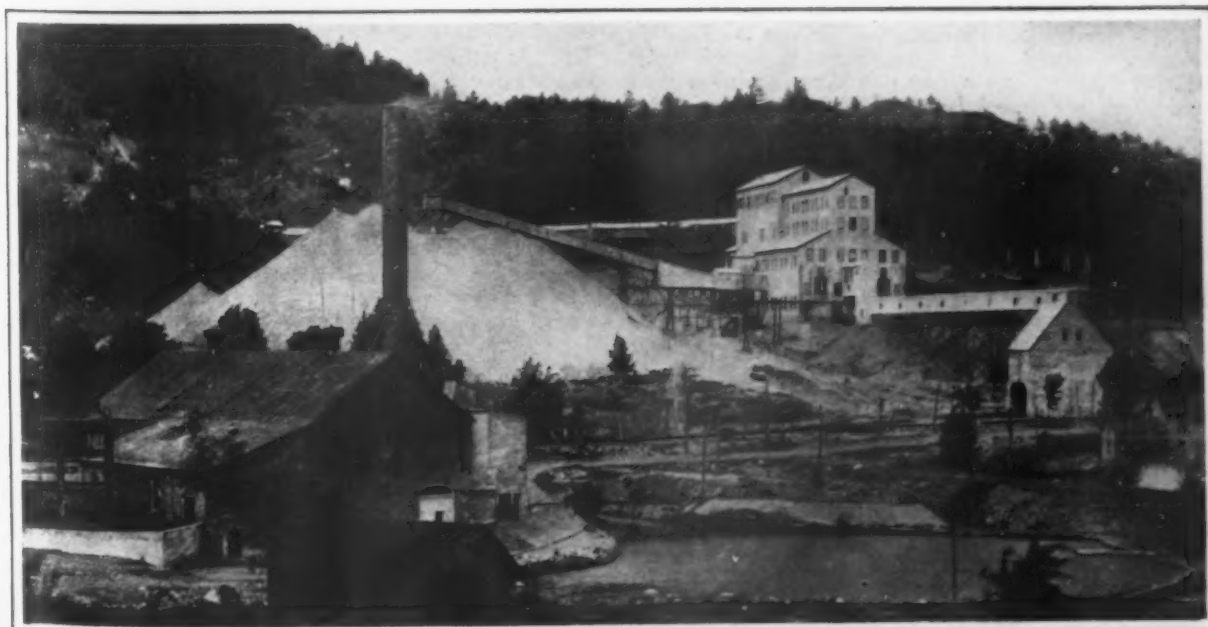
*Published in THE IRON AGE of Nov. 2, 1916. The present paper, abstracted here, was read before the American Iron and Steel Institute, May 26.



Harmony Mill, 2000 Tons Daily Capacity, Harmony "A" Shaft, Warehouse, Shops, Etc., Witherbee, Sherman & Co., Mineville, N. Y.



Electric Shovel at Work Underground, Harmony Mine, Witherbee, Sherman & Co., Mineville, N. Y.



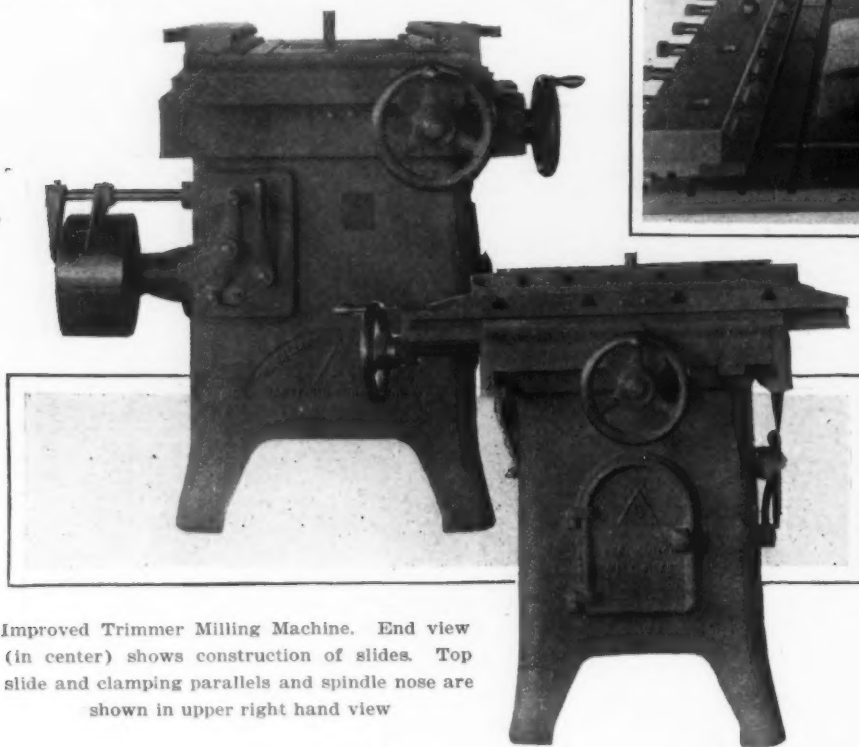
New Bed Mill, Capacity 1500 Tons Crude Ore Daily, Witherbee, Sherman & Co., Mineville, N. Y.

IMPROVED TRIMMER MILLER

Redesigned Unit for Milling Blanking Dies and Dies for Trimming Flash from Forgings

A trimmer milling machine of improved design has been brought out by the Billings & Spencer Co., Hartford, for use in milling the irregular outlines of blanking dies, and dies for trimming the flash from drop forgings. It is also adapted to milling all types of cutting dies for press work. A fundamental feature of the design is that the layout to be cut is in full view of the operator at all times.

An inverted spindle is provided at the center, as shown in the illustrations, and the work may be shifted horizontally and transversely in relation to the spindle, by the operator, as desired. Adjustment of the work



Improved Trimmer Milling Machine. End view (in center) shows construction of slides. Top slide and clamping parallels and spindle nose are shown in upper right hand view

to the spindle is by means of two slides, the work being mounted on the top slide and clamped by two parallels. Slots on the top slide permit placing the parallels various distances from the center of the machine so that work of various sizes can be handled.

Both the longitudinal and transverse slides are operated by screws and handwheels in the usual way, and dials are provided on the slide feed screws to facilitate obtaining accurate work. The ways or bearings for the slides are of the square-lock type, provided with gibs. Both slides have wide base with narrow guides and ample bearing surface.

The spindle has four speed changes, obtained by shifting levers on the speed-change box, the gears in which are driven from a constant speed pulley. Tight and loose driving pulleys are provided as shown. All power-driven rotating parts are mounted on adequate annular ball bearings. The spindle is of large size and is rigidly carried on non-adjustable ball bearings.

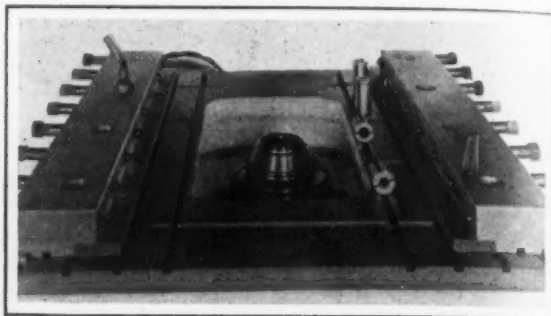
Spring collets hold the cutters in the spindle, the collets regularly furnished being for holding cutters $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and 1 in. The cutters are held in a manner which permits undercutting to any desired draft while following the die layout, and positive release of the cutters is provided for removing them. The collet is operated by a conveniently located hand lever. Insertion and removal of the cutter is unusually easy because of the power of the operating lever and its convenient location.

Particular attention is called to lubrication of the vertical spindle bearings and the disposal of the chips, a forced-feed oiling system being provided and chips disposed of in a manner that eliminates interference with moving parts of the machine.

Dies from $3\frac{1}{2}$ to 17 in. wide, by any length, can be clamped on the machine. The travel of the longitudinal slide is 12 in., that of the transverse slide $4\frac{1}{4}$ in. The pulleys are 10 in. in diameter and run at 300 r.p.m., the r.p.m. of the cutter being 281,421,619 and 926. The floor space occupied is 49 by 58 in., and the weight of the machine 2100 lb.

Improvement in Steel Mill Employment

WASHINGTON, June 6.—The iron and steel industry shows a gain of 4.5 per cent in employment in May, compared with April, according to the Employment



Service of the Department of Labor. The increase in numbers in the industry was 16,959. On May 31, the 1428 firms included in the 14 industries reporting employment conditions had 1,668,988 workers, or 52,154 more employees on their payrolls than they carried on April 30, an increase of 3.2 per cent. The only industries showing a loss were leather and its finished products, tobacco manufacture, and liquor and beverages.

Railroad repair shops showed a gain of 2843 employees, or 11.2 per cent, and metal and metal prod-

ucts other than iron and steel a gain of 1370 workers, or 1.5 per cent.

Iron and steel towns showing gains by numbers and percentages are as follows: Toledo, Ohio, 2146, or 11.4 per cent; Chicago, 10,135, or 6.1 per cent; St. Louis, 1031, or 6 per cent; Youngstown, Ohio, 1895, or 5.7 per cent; Birmingham, Ala., 985, or 3.8 per cent; Cleveland, 2433, or 3.1 per cent; Pittsburgh, 2466, or 3 per cent; Buffalo, 818, or 2.9 per cent; Johnstown, Pa., 335, or 2.7 per cent; New York, 365, or 0.24 per cent. Towns showing losses included Cincinnati, 1300, or 11 per cent; Philadelphia, 2406, or 2.4 per cent; Baltimore, 501, or 1.8 per cent.

"With the exception of coal and the cotton textile industries, the country as a whole is rapidly getting back to an employment basis," said Director Francis I. Jones of the Employment Service. "The broadening out of industry in nearly all lines of activity during May clearly emphasizes the fact that business depression is behind us. Confidence is restored; June will accentuate the upward movement; industry is steadily expanding."

The Mellon Institute of Industrial Research of the University of Pittsburgh has issued its report for the year ended March 1, 1922. This describes the remarkable growth of the industrial fellowship system. The fellowships are established by associations of manufacturers through the donation of money which provides for independent investigation and obtains results of direct profit to the industrial concerns contributing. The report lists the notable investigations, refers to the publications of researches and enumerates the lectures by those engaged in research. A large list shows industrial fellowships now in operation.

Buckets and Skips for Blast Furnaces*

British Engineers Discuss Merits of the Two Systems of Filling—Results of American Practice Cited

ONE of the most important matters in connection with blast-furnace practice, and one that has probably received more study than any other, is the subject of filling and proper distribution. The mechanical charging of blast furnaces has developed along two principal lines, the skip and the bucket, and beyond a very brief reference to a few of the best-known examples of each, this paper will be devoted to a general comparison of the two main types.

Without going historically into the question of the developments to date, it may reasonably be accepted, as a basis of discussion, that distribution due to properly controlled hand filling is ideal. The early attempts at replacement were all, with one exception, on skip lines. It was soon found that, owing to the separating or shovel effect of the skip, serious errors in distribu-

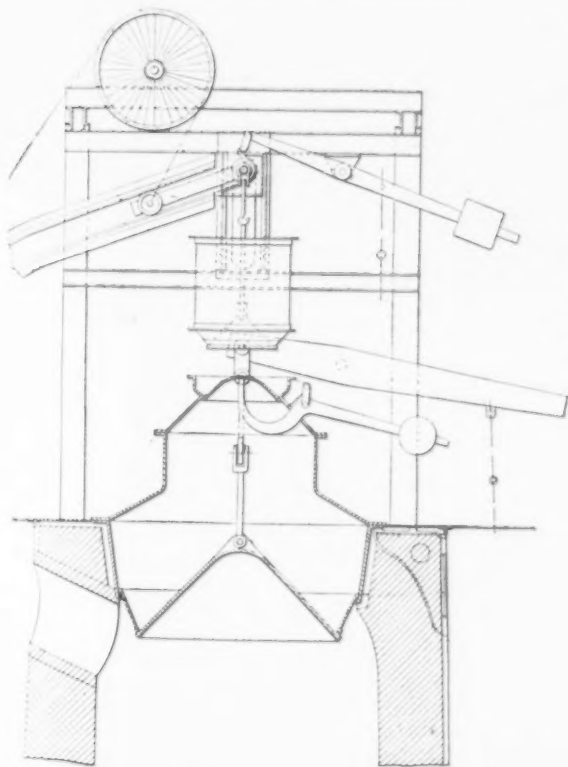
tion took place. In Europe it may be said that the Neeland system, with slight modifications, has now become very largely adopted. In England, France, Belgium, and Germany about four bucket systems have since 1900 been installed to each skip arrangement, and since 1910 the above proportion has been very much further increased.

The bucket is mechanically quite as serviceable a carrier as the skip, and affords the great advantage of a simple, free, and open furnace top, no mechanism being needed to rearrange the charge and prevent bad distribution. The whole disposition is done properly at the floor level.

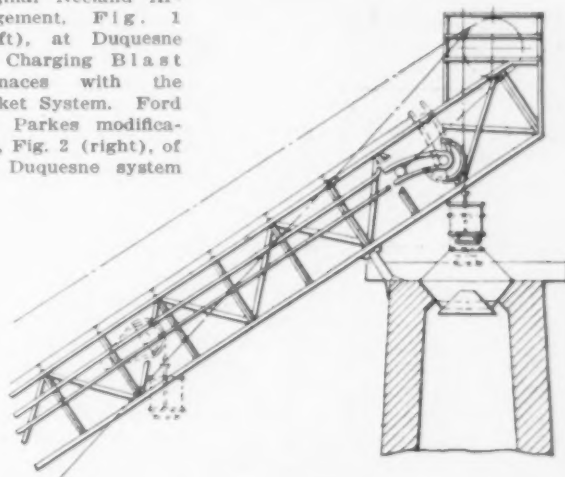
The objections to the bucket arrangement that have been advanced are:

1. Its first cost. The adoption of the ordinary skip incline to bucket carrying does undoubtedly mean increased weight of structural material, especially if complete stiffness is to be insured. It is a matter for consideration whether the incline is really the best device for handling the large type of bucket that seems to be coming to the front to-day. Various types of charges of what may be called the vertical-horizontal pattern have been satisfactorily applied. They are easily controlled, simple in construction, and have special advantages when the application of mechanical charging to existing furnaces is considered.

2. The unit charge is said to be too large. It is un-



Original Neeland Arrangement, Fig. 1 (Left), at Duquesne for Charging Blast Furnaces with the Bucket System. Ford and Parkes modification, Fig. 2 (right), of the Duquesne system



tion took place. Methods to remedy these errors were the incorporation of various kinds of revolving tops, all of which doubtless in a measure led to improved conditions, and some of which are to-day giving fairly satisfactory results. It must not be overlooked, however, that such devices are but means of rectifying a method of charging that is fundamentally inaccurate, and further, that such additional equipment is not altogether desirable on the top of a furnace, is troublesome to keep in order, and will do much more harm than good should it get out of commission unnoticed for a little time.

The first attempt on bucket lines, by Neeland of Duquesne, was not immediately successful, and was not at the time copied by others. When, however, its characteristics became more fully realized, success followed, and the continued satisfactory operation of the Duquesne plant is a matter of common knowledge in the States, where this system is now being increasingly

doubtedly true that when the bulk of the burden is very fine, as with some American conditions, split charges, that is, thin layers, are sometimes necessary. Strictly speaking, with the bucket the charge can be made anything. For purely mechanical reasons the large unit has the advantage, entailing less wear and tear, slower motion, etc. Should small charges be required, either permanently or for a short period, it is considered better to arrange them in double layers in a large bucket rather than to reduce the bucket to a small capacity to suit.

3. It has been asked—How can a furnace that drives faster on one side than another be filled properly with a bucket? No serious difficulty has been experienced from this cause that cannot in practice be overcome by adjustment at the tuyeres.

Broadly, the above considerations briefly involve the main primary differences between the two systems.

[The author then gives detailed descriptions and drawings of representative installations of the two systems, several of which have been discussed in THE IRON AGE. Only two of these are abstracted here, the original Neeland and the first important departure from it.]

Fig. 1 is the well-known Neeland arrangement as installed at Duquesne, and is just a plain bucket with a bell bottom. The method Neeland employed for low-

*Abstract of a paper presented at the annual meeting of the Iron and Steel Institute in London, England, May 5. The author is D. E. Roberts, Cardiff, Wales.

ering the bucket into position is indicated on the diagram. This vertical movement was made by a hydraulic cylinder at the top of the furnace.

The only important difference between this original method and nearly all the other bucket charging devices is that whereas Neeland lowered and opened his bucket by a supplementary device, other patterns enable this movement to be carried out by the continued pull on the winding rope, and without the addition of any supplementary apparatus. On the face of it that appears an obvious advantage.

The old Duquesne arrangement is, however, a very rigid method, and possesses one special claim often overlooked, namely, that it is possible positively to push the bell of the bucket open, which is very useful if charging, for instance, awkward-shaped pig-bed scrap. With the other methods, with one exception perhaps this is not possible, as the charging bucket is suspended by a flexible connection.

The first important departure from the Neeland arrangement is that shown in Fig. 2. This is the arrangement designed some years ago at the furnace of Ed. Ford at Youngstown by his very able engineer, the late Mr. Parkes. The drawing indicates clearly how the lowering of the bucket and the opening of the bell is accomplished by the continued pull on the winding rope, and without any supplementary mechanism.

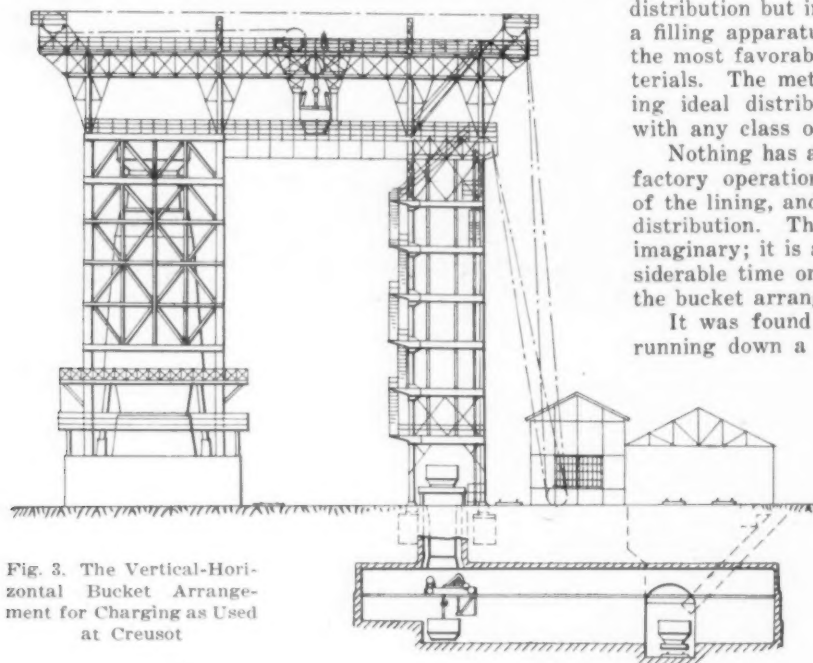


Fig. 3. The Vertical-Horizontal Bucket Arrangement for Charging as Used at Creusot

It will be noted that the movement brought about is the rotation of the traveling carriage upon its front axle. This arrangement was the first of the various methods of bucket discharging put forward as modifications and suggested improvements on the original method. A couple of German designs, prepared on much the same lines, followed shortly after.

Having outlined broadly a comparison between the skip and the bucket generally, and described the relative advantages and disadvantages of both methods, it may be well to consider whether, if the adoption of the bucket become more or less universal, something in the nature of a system that may be called the "vertical-horizontal" may not be worth consideration.

The best means of carrying the bucket to the top of a furnace is a matter well worth discussion. The incline is eminently suitable to the skip. When, however, the heavier loads to be treated by the bucket are considered, as well as the extra length of stem, the difficulties of swinging and general stiffness of structure required—the rectangular method is, as stated, worth consideration. This method has likewise the distinct advantage of being able to pick up from several points, and the structure is, in addition, of great assistance in facilitating the removal of the bell and any heavy repairs that may be required at the top. Fig. 3 is a design of the "vertical-horizontal" arrangement at Creusot.

Automatic control is just as easy with the rectangular types as with the incline, and there are no disadvantages either in matter of speed. It will be seen that the bucket is held in a rigid cage during its horizontal movement, so that any speed may be applied without fear of swinging.

In balancing up the relative disadvantages of the two systems it must not be overlooked that the skip, especially in its most modern double form, is likely to lose some of its disadvantages if the present tendency of ore dressing and sizing becomes universal. The skip is also the cheapest arrangement as far as outlay is concerned because, broadly speaking, it deals with small quantities often as against the bucket, which deals with large quantities at less frequent intervals. The former requires a somewhat lighter structure than the other but as, at the same time, there is more frequent movement there is consequently more wear and tear.

The bucket system provides a furnace top which is practically as simple as that of a hand-filled furnace, and also affords an easy means of removing the bell and doing heavy repairs, which is an important matter. Every iron and steel works man knows that one of the worst possible places to put any complicated and delicate machinery is on the top of a blast furnace. It has been said that the dressing of materials will help distribution but in my opinion it is insufficient to select a filling apparatus which will only do the work under the most favorable circumstances, as with dressed materials. The method chosen should be capable of giving ideal distribution under any circumstances and with any class of material.

Nothing has a more important bearing on the satisfactory operation of the furnace, the wear and tear of the lining, and its life generally than proper charge distribution. The shoveling effect of the skip is not imaginary; it is a real defect. That was for some considerable time one of the causes of trouble, even with the bucket arrangement.

It was found upon investigation that the material running down a chute out of a bunker had the same separating effect; that is, that the lumpy material was thrown to the far side of the bucket, and fine material immediately beneath the chute. Drum outlets have been applied to overcome this difficulty, but the usual method to-day is to spin the bucket while it is being filled. This is a simple illustration of the much more marked positive separation that is brought about by a skip at the furnace top.

The bucket arrangement has another distinct feature with regard to coke, which can be handled without bunkering if desired. This is in many districts an advantage as reducing breakage. It is quite common now for the coke to be loaded at the coke ovens into the furnace buckets direct.

In conclusion the author would emphasize what has been said at the commencement of this paper, that the question of good distribution is a most vital matter in a blast furnace, and any reasonable outlay is justified in obtaining it. For that reason he favors the bucket design.

No reference has been made to other important matters relating to the same subject, such as size of furnace bell in relation to the throat, the correct lowering of the bell without lateral movement or swinging, the importance of maintaining stockline level, and considerations as to internal deflecting devices for radially influencing the filling. All these are important and bear upon the general question of distribution.

The author does not lay claim to having put forward any new matter. The paper has been written purely for the sake of raising a discussion among blast furnace users upon the relative merits of the skip and the bucket.

The natural desire for greater output, as well as the much increased cost of labor, makes it essential that some satisfactory means may be adopted, both for the reconstruction of existing plants at home as

well as for the developments now contemplated in the colonies and dominions, and in other parts of the world.

Discussion

A. K. REESE said both the skip and the bucket systems were satisfactory as methods of hoisting, but the skip was less costly to work, and was also of lighter and smaller construction. The bucket system required a massive construction to handle large units, and the probable cost of the rival installations could be readily compared. Then there was the question of distribution on the large bell of the furnace. There was no doubt that the bucket system gave a good distribution after the bucket got to the top, but the skip hoist, as now designed and arranged, would give a distribution equally uniform with that of the bucket. The author had mentioned this and attributed it to the so-called revolving top; to this he took exception. Some engineers objected to mechanism at the top of a blast furnace, but he failed to see the reason for this. A modern blast furnace top was just as cool and pleasant a place as underneath the bins in the stock house. Indeed, there was more dust in the stock house to affect the wear of the roller bearings. The bucket also required a revolving hopper or bucket to obtain good distribution, and the only difference was that with the bucket hoist the revolving part worked in all the dust of the ore discharging from the bins. There must be distribution in the bucket itself. The buckets were of large size, holding 8 to 10 tons of ore when full and the latest practice was to have a revolving bucket to get a good distribution of ore in the bucket. The revolving bucket, however, was no argument for the bucket hoist as against the skip hoist. The only difference was that in the skip system it was at the top and in the bucket system at the bottom.

Bucket System Rigid

The question of flexibility needed emphasis. A furnace hoist should have a considerable degree of flexibility as to load. With the bucket hoist, comparatively full bucket loads were usually carried slowly as against small loads carried swiftly in the skip. Only by experience could one arrive at the most suitable size of charge. It was impossible to say when designing a furnace whether it would work best on a 2½-ton or a 5- to 6-ton coke unit, and it was sometimes advisable to alter the coke unit for a period. There must be, therefore, a means in the charging apparatus of varying the size of the coke unit. With the bucket system, variation could only be obtained by considerably reducing the efficiency. For example, to charge a 2½-ton coke unit in a bucket hoist built for a 5-ton unit means using the system at half its capacity, and, moreover, the charging would be slowed down which might be a serious matter on a fast driven furnace. The author's suggestion that two charges should be put in one bucket was not practicable, for with a coke unit of 2 to 3 tons, ore and limestone, the total double charge would be 12 to 14 tons. The speaker thought the bucket system was too rigid for operative purposes, and that the charging apparatus should be sufficiently flexible to allow for as small or as heavy charges as might be desired.

The points in favor of the skip hoist were: lighter construction, lower first cost, greater flexibility, and equally good distribution. There was, however, one feature undoubtedly in favor of the bucket hoist although it could not be used in all places—namely, the possibility of taking coke direct from ovens to furnace in the buckets.

As regards the so-called vertical-horizontal hoist, he could not see the object of making three movements instead of running the load up diagonally. The cost must also be very much greater than the diagonal skip. The vertical-horizontal system would be useful as a makeshift in the reconstruction of existing plant. In the early days the skip hoist had got a bad name, but the early difficulties had been overcome by the use of revolving hopper, and now the skip hoist was coming into its own again. He thought it would soon supersede the more bulky and costly bucket hoist.

A. LENNOX LEIGH drew attention to the fact that bucket charging was rather a difficult operation with-

out a good deal of ore bunkering arrangement. He had found great trouble owing to the amount of dust, and thought it was essential to have some sort of dust collecting device. He had found it necessary to put such an apparatus in an underground bunker, otherwise the men could not work there. With the bucket system, in addition to being able to fill at the coke ovens, it was also possible to make better preparations for loading direct from cars without using bunkers. Where poor coke was used the saving in breakage thus realized would give a far lower coke consumption. He did not see how a similar arrangement could be made with a skip hoist. He thought that the bucket system could be arranged so that one apparatus could feed two furnaces, and he was inclined to think that such an arrangement would be cheaper than two skip hoists.

Adverse to Bucket System

F. CLEMENTS said his sentiments were against the bucket hoist, which was entirely a Continental development whereas the skip hoist was essentially American. For the bucket hoist to be satisfactory it must be revolved and the man revolving the bucket was working down in the skip pit which he had seen, in Continental plants, dripping with water, smelling like a graveyard, and generally most unpleasant. The man had the responsibility of making or marring the distribution in the furnace. If he did not revolve the bucket at the right speed, or if the bin gates were not properly opened, or if the material did not run freely and evenly, then the distribution in the bucket was wrong and nothing could rectify it.

In the speaker's opinion there were only two skip gears worthy of consideration. The first was the McKee gear, well known in America, and the second was his own. The McKee gear was developed to meet American conditions, where the ores were relatively fine and uniform and it did not seem to matter very much whether the small bell was revolved or not, and Mr. McKee claimed that if the revolving gear broke down the furnace kept on working just as usual. In that case why revolve it? As a matter of fact a gear was at present in use at Chicago in which the relative size of the two bells had been fixed and the distribution was quite satisfactory with the Lake ores used. In England, however, the conditions were quite variable, big lumps of ore being mixed with very fine clay material. The McKee gear would not be satisfactory for such ores. The whole purpose of the enlarged top hopper in the speaker's gear was to insure an even distribution, which was essential under English furnace conditions. The shoveling effect, which everybody admitted existed, was overcome by the method of distribution on to the large bell, and it was possible to get a distribution equal if not superior to hand filling. Another point was that, with the enlarged hopper, it was possible to charge the furnace at any spot, and all operations were controlled by one man who, although he could not see the furnace, had an indicating gear showing exactly the operating conditions. He thought the balance of evidence was on the side of the skip gear.

Good Distribution the Test

J. H. HARRISON held that the great point to keep in mind was distribution. The system giving the best distribution inside the furnace would prove, other things being equal, by far the best. The question of coke breakage was almost as important as the distribution of materials, and he thought the skip system broke the coke far more than the bucket system. He thought there was bound to be a great deal of breakage in the McKee plant. For these reasons he considered the skip far less suitable than the bucket. Distribution at the bottom of the furnace, as in the bucket system, was far easier and far more under the control of the management. Any breakage in coke, no matter where it took place, ought to be remedied by taking out the small. He also recommended taking out all the smalls from the ore and sintering them.

D. E. ROBERTS, closing the discussion, said he was not sure that the case for the skip system had been made out. In America there were about 220 furnaces

fitted with the skip, and the engineering organization was so elaborate that spare parts were, so to speak, kept in the engineers' cupboards, like so many Ford cars. Under these conditions it was a marvel that the bucket ever got a look in. Nevertheless, it was a fact that a few years ago the bucket made itself felt and there were now some 33 or 34 installations. In papers read before the American Iron and Steel Institute very

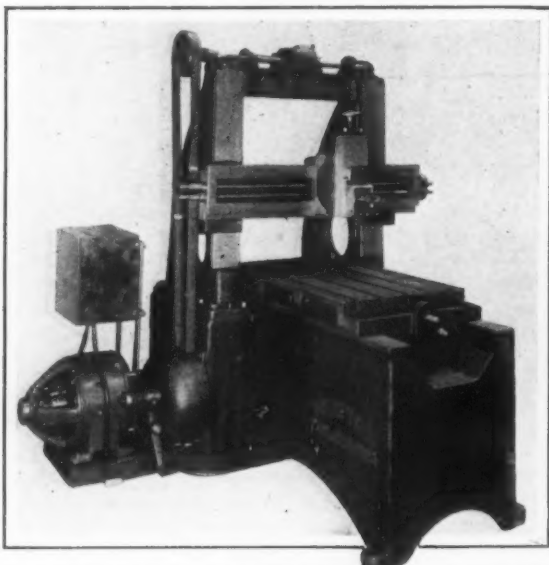
kindly feelings were continually expressed toward the bucket arrangement, and this was evidence that there was some feeling of distrust of existing arrangements. In a private communication, the president of the Carnegie Steel Co. wrote to him last year that he would never install any but the bucket arrangement. This indicated that even in America, the home of the skip, there was a drift toward the bucket.

NEW CRANK PLANING MACHINE

Heavy Duty Tool for Short-Stroke Work—Provides Positive Stroke With a Fixed Return and Wide Range of Speeds

A new crank planing machine providing positive stroke with a fixed quick return and a wide range of speeds has been brought out by the Newton Machine Tool Works, Inc., Philadelphia.

The machine is shown in the accompanying illustrations. It is designed as a heavy-duty tool for short-stroke work and is said to be particularly adapted to



Crank Planing Machine. The motor is mounted on the off side, as shown

the machining of die blocks, forming dies, locomotive crossheads, shoes, wedges and similar work. The rated capacity is 32 in. wide, 32 in. high, with a maximum stroke of 34 in. One or two heads are provided on the cross rail, as required.

The base is a one-piece, box-type casting in which all thrusts and cutting strains are concentrated. Uprights are of box section, bolted and doweled to the base. The motor is mounted on the off side of the machine, as shown, and variations in speed are controlled by the gear box, which provides strokes of 6, $8\frac{1}{4}$, $12\frac{1}{3}$, $17\frac{1}{2}$, $23\frac{2}{3}$, and $35\frac{1}{2}$ per min. The gears in this box are of the sliding type, of hardened steel and are fully inclosed to run in oil. Compactness of drive mechanism is a feature.

The main driving gear is of the helical type and is 37 in. in diameter with $4\frac{1}{2}$ -in. face. This drives the rocker arm and gives a relatively uniform cutting speed, with a slightly lower speed at the start of the cut. The quick return is $1\frac{1}{4}$ to 1, maximum.

The table is of double-plate construction and has an adjustment of 20 in.; this adjustment can be made while the machine is stroking. After it is positioned, the driving element is solidly clamped by the square end shaft shown at the left end of the table. Control of the table is through a clutch and brake operated by the lever, shown at the operating point, provision being made to lock this out of position so that it cannot re-engage and injure the operator.

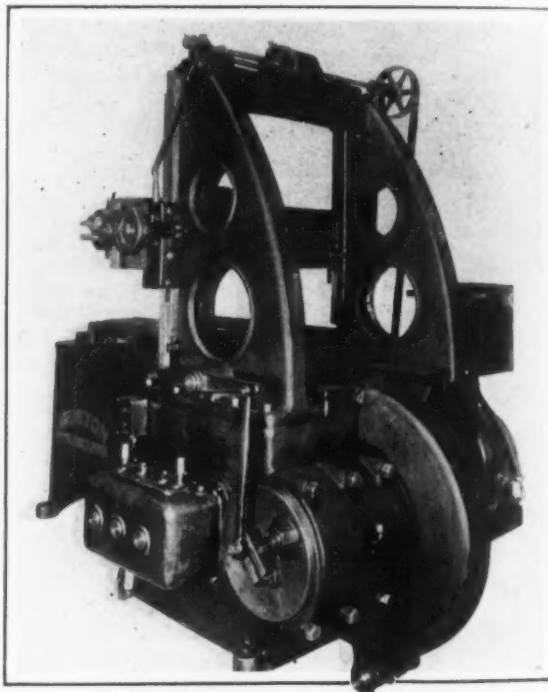
The feed motion is of the cycle type, operating on the return stroke of the table, and transmitted to the

cross-rail through rack and pinion, giving cross, down and angular feed. The cross-rail is raised and lowered by power derived through the belt, as shown.

In operation, cuts on forged steel $\frac{3}{8}$ in. deep, with $1/16$ to $\frac{1}{8}$ in. feed are taken. Length of stroke is set from the operating side, and an indicator is provided to show the length.

Columbiana Foundries Extensions

The Columbiana Foundries Co., with plants in McKeesport, Pa., and Columbiana, Ohio, has been granted a transfer of charter from Ohio to Pennsylvania, and has increased its capital with the change from \$300,000, authorized by the Ohio charter granted in 1907, to \$600,000. Much of the new money will be used in extensions to the McKeesport plant, in connection with which the company will enter the market for some equipment. Officers of the company are F. C. Sullivan, president; J. L. Sullivan, vice-president; F. B. McCon-



View of Operating Side of Crank Planing Machine. Showing Compactness of Drive Arrangement. Length of stroke is set from this side

nell, treasurer and I. G. Miles, secretary. The company reports full capacity operation of the McKeesport plant, with orders on hand sufficient to maintain full operation for several months. The company plans to put on its Columbiana works full time later this month.

The American Gas Furnace Co., Elizabeth, N. J., recently shipped a large lot of furnaces to China for use in the Shanghai mint. The total shipment was between 118,000 and 120,000 lb., and was made up of furnaces for melting silver for conversion into Chinese coins and furnaces for annealing the blanks or "planchettes" from which the coins are stamped. There was also comprised in the shipment furnaces for assaying, which are built in the wall of the building and are of the same type as those used in the Philadelphia mint. Besides these, there were furnaces designed for tool and die hardening, as well as for annealing dies.

Reduction of Ore Freight Rate Granted

Washington Conference Favored Quick Action—Arguments of Buffalo Objectors Combatted— Numerous Briefs Filed

BY L. W. MOFFETT

WASHINGTON, June 6.—The Interstate Commerce Commission to-day granted special permission to the railroads to reduce rates on ex-lake and Eastern iron ore by 10 per cent upon five days' notice. It is the purpose of the carriers to make the reduction effective on June 15. Request for such action was urged at a conference last Thursday between the shippers, consumers and railroads concerned and Director of Traffic Hardie of the commission. A sixth section application seeking permission to put the lowered rates into effect on short notice has been filed with the commission and formed the basis of the discussion at the conference. The necessity of putting the reduced rates, as provided in the recent general rate reduction decision, at an early date, instead of waiting until July 1, the effective date named in the decision, was urged at the conference. It was pointed out that the iron and steel trade has revived and that stimulation of shipments of ore is particularly desirable, but that this may not be expected before July 1 unless the sixth section application is granted. It was pointed out that contracting for ore is partially dependent on final action on the rate decision. The application, if granted, would make it possible, if the commission saw fit, to allow the reduced rates to become effective upon one day's notice.

Rates from Mines to Upper Docks

The discussion also involved brief but not official consideration of rates from the mines to upper docks in the Lake Superior district and also the Eastern ore rate situation. It is assumed that if the sixth section application relating to ex-lake ore rates were granted, similar action might be expected with regard to Eastern ore rates upon the filing of a like application as to them. There also is growing insistence that the upper lake rates be reduced at an early date and it is reported a cut of 30c. per ton may be asked in the latter rates. These were not affected by the general rate decision.

Meanwhile briefs have been filed with the commission asking for immediate vacation of its order suspending reduced rates on ex-lake ore by 20 per cent and on Eastern ore by 28 per cent. The Soo Line also has filed a brief in an effort to justify rates from mines to upper docks. These are old cases that were pending before the general rate decision was made. Presumably if the suspension orders were vacated, allowance would be made for the 10 per cent reduction.

The Buffalo Protest

The briefs treat at length the issues involved in these proceedings, and stress the point that the only protest against vacating the orders comes from Buffalo district iron and steel manufacturers who are seeking lower rates on coal and coke to their plants before reduced ore rates provided in the suspended tariffs become operative. It is endeavored to show that the contention as to relationship between the ore rates and the fuel rates involved is not well founded. The Eastern ore rate reduction amounted to 28 per cent, which removed the 40 per cent increase effective Aug. 26, 1920, while the ex-lake ore rate reduction amounted to 20 per cent.

The brief of the Youngstown Sheet & Tube Co., dealing with the ex-lake situation, says that there is no question but that the reduction will stimulate the iron and steel business generally and will therefore increase the revenues of the carriers and that the carriers themselves are of this opinion. It is declared that the industry is going along on a hand-to-mouth basis

and is not bringing the ore down from the docks, nor is it ordering ore down from the mines. It is pointed out that the ore season lasts only from April to November and that the ore rates should be permitted to become effective at once, so that interior furnaces may make their arrangements for the movement of iron ore. If not, it is stated, business will be held up and "we will continue in a state of uncertainty as to what the situation is going to be. Business cannot thrive on such a basis."

Statement Not Justified

The brief of the Carnegie Steel Co., American Steel & Wire Co., and the National Tube Co., also dealing with the ex-lake rates, attacks the press notice of the commission issued in connection with its suspension of the reductions made. It says there is no justification for the statement in the notice that the interior furnaces are in most cases located in close proximity to the coal fields and pay short-haul rates on coal. It is declared that 205 furnaces are located at interior points in Ohio, West Virginia and Pennsylvania and that only 34 or 16 per cent receive their coal by river. The remainder of the furnaces, it is stated, are wholly dependent upon rail movement of coal and coke. Rail rates on coal and coke to all of these furnaces are declared to be relatively higher than the rail rates on the same commodities to the furnaces in the Buffalo district. It is added that if the carriers which transport the coal and coke to the interior furnaces also transported the coal and coke to the Buffalo furnaces, the protestants could not successfully maintain a charge of undue prejudice in favor of the interior furnaces. As a matter of law, it is stated, the undue prejudice would be against the furnaces in the central district. Immediate vacation of the suspension order is asked.

The brief of independent steel companies in and near the Pittsburgh district attacks the claim of relationship between ex-lake ore rates to Pittsburgh and local coal rates from Pittsburgh to Buffalo.

Equalization Theory Condemned

"Intervenors are unable to see the difference in theory between recognition of such relationship and recognition of the so-called equalization of assembling costs," the brief states. "The equalization of assembling cost was an adjustment of rates on coke, iron ore and limestone to create for certain competing districts an approximately equal aggregate freight cost inbound on the materials used to make a ton of pig iron. . . . That theory of rate making the commission 'condemned,' to use its own expression at page 188 of the iron ore rate case decision." It is added that the record shows that there has never been any relationship in the past between the ore and coal rates.

A similar attack on such relationship is made in the brief of the freight committee of the Eastern Pig Iron Manufacturers, Midvale Steel & Ordnance Co., and Cambria Steel Co., which covers both the Eastern and ex-lake cases.

Port Henry Shippers

The brief of Witherbee, Sherman & Co., and the Port Henry Iron Ore Co. deals with rates from Port Henry, N. Y., to trunk line territory and declares the reductions are absolutely necessary to give Port Henry reasonable rates and remove existing discriminations in favor of import ores and other local ores to the same Eastern markets.

The brief for the trunk line carriers, filed by Alex-

ander H. Elder, asking for immediate vacation of the order of suspension applying to Eastern ore rates says that this case presents one of the "particular situations" allowed for in the recent general reduction case.

Action of Trunk Line Carriers

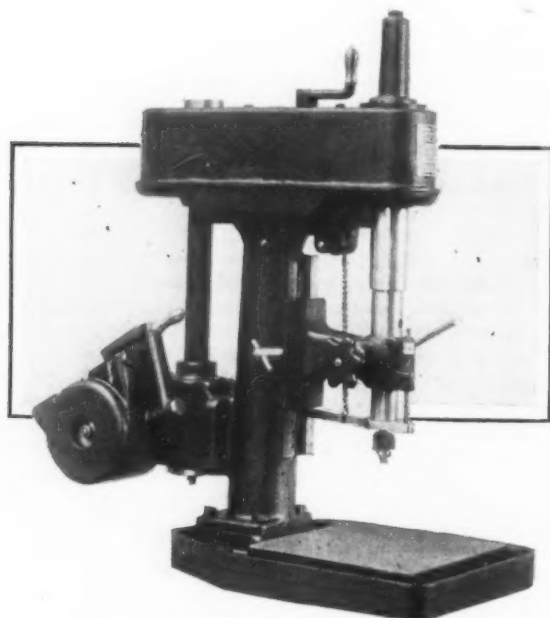
The Trunk Line carriers, with one or two exceptions, also have filed a sixth section application seeking permission to put the 10 per cent reduction on Eastern ore rates into effect upon one day's notice. By the decision of the commission in the general rate case, it is possible to put the reduced rates into effect on 10 days' notice, if permission is obtained from the commission, without waiting until July 1. In the event the sixth section applications are not granted with regard to ore rates, it is believed the carriers will try to lower the rates upon 10 days' notice. Buffalo iron and steel interests have notified the commission that they are not opposed to the sixth section applications, provided it is shown as contended by the carriers that an emergency exists and it is necessary to begin movement of ore at once, so that when the normal coal movement is begun, there will be an ample car supply. Apparently, however, the Buffalo interests do not believe such an emergency exists.

New Sensitive Drilling Machine

The sensitive drilling machine shown in the illustration, designated as the Superspeed drill, has been added to the line of the Fosdick Machine Tool Co., Cincinnati. It is built in both pedestal and bench types and in combinations of from one to eight spindles.

The capacity of the machine is for drills up to $\frac{1}{4}$ in., in steel, iron or brass. With the driving pulley at 1750 r.p.m. three spindle speeds, 5700, 8000 and 12,000 r.p.m., are available. All revolving members are equipped with annular ball bearings and dust-proof oil retainers. A spiral gear drive is provided to eliminate vibration and noise and, in combination with the flat endless belt, serves to reduce drill breakage at maximum speeds.

The speed-changing arrangement is a feature emphasized. A single turn of the handle automatically releases the belt tension, shifts the belt from the larger to the next smaller step on one cone pulley, followed



New Sensitive Drilling Machine. The speed-changing arrangement is a feature emphasized

by the same movement from the smaller to the next larger step on the other cone. The belt tension then automatically adjusts to the new position. An aluminum guard incloses the belt and cone pulleys and may be lifted off without loosening or removing the bolts or nuts. This permits installing new belts quickly.

In the pedestal-type machine large floor area is pro-

vided. The elevating table is of the quick-acting counterbalanced type, with clamping handle located in front. The traverse is 10 in. The head has a vertical traverse of 6 in., and is counterbalanced to prevent dropping when unclamped.

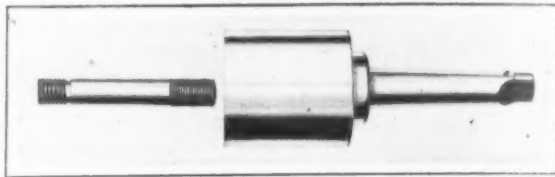
The spindle feeds to a depth of 3 in., and is provided with a stop adjustable to any point within that range. An adjustable gravity counterbalance without springs may be set to automatically return the spindle. The feed lever is adjustable to suit the operator's convenience and opposite this lever a quick-return handle wheel is provided, which permits the operator to position, feed or return the drill with either hand.

Motor drives are either belted or direct connected, the motor being of $\frac{1}{2}$ hp. and mounted on the machine. The belt guard is adjustable to any angle. The bench-type drill, single-spindle machine weighs 225 lb., and the pedestal type, 464 lb.

Self-Opening Stud Setter

The self-opening stud setter shown in the illustration, known as the Jarvis, is being placed on the market by the Geometric Tool Co., New Haven. The tool is of simple design and is easily workable, having a quick grip and ready release. The jaws are constructed for hard service.

Three sizes are regularly made, the No. 1 $\frac{1}{2}$ having



Stud Setter Having Quick Grip and Ready Release

a capacity from 0 to $\frac{1}{2}$ in., with a No. 2 or 3 Morse taper shank. Size No. 2 has a capacity from 0 to $\frac{3}{8}$ in. with a No. 3 or 4 Morse taper shank, the No. 3 size ranging from 0 to $1\frac{1}{2}$ in., with a No. 4 or 5 Morse taper shank. Other sizes of taper shank can be provided, and different size jaws for any size studs within the capacity of each tool, also.

Unemployment Decreasing

HARRISBURG, PA., June 5.—Iron and steel conditions continued to improve during the first half of May, according to the semi-monthly report of Clifford B. Connelley, commissioner of the Pennsylvania State Department of Labor and Industry. Thirteen per cent fewer iron and steel workers were unemployed on May 15 than on May 1, and 25 per cent fewer than on April 15.

Seven of the ten employment districts of the State reported better conditions; two reported no change, while the tenth reported 100 more unemployed. The biggest reduction in unemployed again is reported by Philadelphia, where only 30,000 were idle on May 15 as compared to 35,000 on May 1 and 45,000 on April 15.

The number of unemployed in the metal and machinery trades, by districts, on April 15, May 1 and May 15 follows:

	April 15	May 1	May 15
Altoona	600	875	975
Erie	5,000	4,500	3,800
Johnstown	3,500	3,000	2,000
McKeesport	1,400	1,200	1,200
New Kensington	900	700	600
Philadelphia	45,000	35,000	30,000
Harrisburg	2,500	2,000	1,800
Pittsburgh	6,000	5,000	4,500
Scranton	3,500	4,000	4,000
Williamsport	400	300	200
Totals	68,800	56,575	49,075

Philadelphia, which again reports the biggest decrease in the number of unemployed, reports that there has been a good demand for machine hands, helpers and semi-skilled men by Midvale, Cramps and a number of the smaller industries.

German Pig Iron Again Raised June 1

Finished Steel Prices Hold, Though Export Decline Is Feared—Costs Steadily Rising—Germany Gets Styrian Magnesite

(By Radiogram)

BERLIN, June 5.—The iron and steel market continues firm. The demand for labor for certain metal and mechanical branches is exceeding the supply, while general unemployment has dropped to 9 per 1000.

Eisenwirthschaftsbund (Iron Trade Association) again raised pig iron prices June 1: hematite to 6724 m. per metric ton (\$25.62 per gross ton*); foundry iron No. 1 to 6206 m. (\$23.64); foundry iron No. 3 to 6136 m. (\$23.39); Siegerland steel-making iron to 6300 m. (\$24.00); spiegeleisen to 7137 m. (\$27.19).

The Steel Syndicate has postponed the question of raising the price of its products. Producers' repre-

*Exchange figured at 0.375c. per mark.

sentatives demanded a rise averaging 1000 m. per metric ton (\$3.81 per gross ton). Consumers' representatives opposed this on the ground that it would prevent the competitive export of finished goods.

Iron and steel producers' associations have again petitioned the Government to abolish the export duties, which average 6 per cent, alleging that already foreigners are making deliveries at lower prices.

Fuel shortage is increasing. Reparations demands of the Allies for coke have been raised to 638,000 tons monthly, with the result that 1,300,000 tons of English coal had to be imported during the first four months of the year.

(By Mail)

BERLIN, GERMANY, May 20.—During the past fortnight the demand for iron, steel and finished metal goods has weakened somewhat. Minister of Labor Dr. Brauns this week warned the Reichstag that industrial depression is coming, mentioning as chief instance that French iron and steel products in increasing quantities are selling in Westphalia. The Solingen steel industry reported a week ago that while most works have still orders for six to eight weeks ahead, new orders are falling off, and it is complained that America, which at one time took more than 60 per cent of Solingen's standard export goods, at present shows reserve.

As production cost has risen enormously since last November, while mark exchange has not fallen further, there are persistent complaints of difficulty in competing with French and Belgian producers, but with a few exceptions these complaints are unfounded. German prices, however, are not far from those of the world market. As, judging by precedent, the mark exchange must soon have either a new considerable fall or a considerable recovery, it is certain that either prices again will fall materially below those of competing countries or rise materially above them. In the latter case, the home market will absorb for a time all that can be produced; but a general setback in trade will ultimately be inevitable. The present trade boom is due exclusively to the heavy decline in mark exchange.

Need a Further Fall in Marks

The president of the Machine Manufacturers' Association, Dr. Börsig, declares that the engineering industry depends upon a further decline of mark exchange; a mark improvement, or even stabilization, he predicted, would produce a collapse of exporting. Producers in increasing numbers declare that they cannot supply the home market at the prices contracted for a few months back; and with this excuse the big wholesale iron firm of Otto Wolff of Cologne has repudiated all its unfilled delivery contracts. The Leipzig Supreme Court, applying the so-called "clausula rebus sic stantibus," has decided repeatedly that a contract may be repudiated if price conditions since it was made have been radically changed by currency depreciation. There are chronic complaints against Germans for doing this, in the foreign press, particularly in neutral papers. The important Schmalkalder iron and steel industry reports declining orders. The wire export market was active in the first part of April, but has since weakened. Producers declare that with a 280 to 290-mark dollar present German prices are too high; and that unless the mark has a new drop home prices must be cut.

Advances in Pig Iron and Fuel

Coal prices have gone up, month by month, sometimes at shorter intervals. The price of standard Ruhr coal (Fettfoerderkohle) was fixed at 699.80 marks per

metric ton on April 1, but was raised again to 890.30 on April 21. The same coal in 1914 cost 13½ marks a ton, so that prices are nearly 70 fold up. Fuel shortage is increasing and English coal is coming in in larger quantities—300,000 tons in March. Foundry coke was raised from 1059.60 marks to 1355 marks. Result of this movement has been a month-to-month increase of production cost and prices of pig iron, half-finished material and rolling mill material. Pig iron prices are still compulsorily maximized by the official "Eisenwirtschaftsbund," but for the other products only "guiding prices" are fixed, though the employees' representatives in the bund's control council persistently press for reintroduction of maximum prices, which were abolished during the heavy price fall of early 1921. The price movement for pig iron has been as follows, in marks per metric ton:

	May 1, 1922	April 1, 1922	Dec. 1, 1921	May 1, 1921	May 1, 1920	Pre-war
Hematite	6,435	6,264	3,891	1,816	2,350½	79½
Foundry No. 1 . . .	5,870	5,549	3,326	1,560	1,790½	75½
Foundry No. 3 . . .	5,800	5,473	3,250	1,494	1,789½	70½
Siegerland steel-making iron . . .	6,000	5,565	3,374	1,535	1,626	79
Spiegeleisen	6,525	6,020	3,067	1,708	1,708	75

Prices are now about 80 times those of 1914, and about four times those of May, 1921, when the low point of that year was reached. The new per ton price, also fixed by the "Eisenwirtschaftsbund," of ferromanganese 80 per cent is 14,860 marks, 50 per cent 13,735 marks and of ferrosilicon, 10 per cent, 7750 marks, which rates are between 100 and 200 per cent over those of last November. Unless the mark exchange has a big recovery, pig iron prices are bound to rise further in the coming months.

Finished Steel Prices Stationary

The prices for other heavy products were not raised this month. The last advance was on April 1, rates then, as compared with earlier dates, being as follows, in marks per metric ton:

	April 1	March 1	Pre-war
Ingots	7,170	5,320	82½
Blooms	7,775	5,770	87½
Billets	8,010	5,945	97½
Slabs	8,200	6,085	95
Construction forms	9,325	6,920	110
Bars	9,500	7,050	97-99
Universal shapes	10,355	7,585	115-122
Rands	10,580	7,750	105
Wire rods	10,265	7,515	117½
Heavy plates	10,650	7,805	105
Medium plates	12,140	8,910	110
Light plates	12,770	9,375	125

From the Steel Syndicate, which directs prices in the last group, manufacturing consumers are at present demanding a price cut, on the ground that the prices of goods into which iron and steel enter are above those of the world market, and that export is threatened.

The tremendous rise in iron and steel prices since

last summer is caused only partly by the increased cost of foreign ores, and by the increased cost of living, which in the last three months has sent up wages 40 per cent. It is due also to the Wirth cabinet's considered policy of abolishing subsidies and subsidized deficits, as result of which railroad and postal rates and bread prices have risen enormously. It is also largely due to the great increase in coal and coke prices, resulting partly from higher wages and partly from the increase of the coal tax.

Good Demand for Steel

The last monthly statement of the Prussian Trade Minister reports prosperity in almost every iron and steel using branch. The supply of Swedish ore is adequate, and last winter contracts were concluded for import of Wabana (Newfoundland) ore, but there has been difficulty in getting French minette. The heaviest demands are for pig iron, construction forms and light plates, but heavy plates are difficult to sell. The demand for heavy and mine rails is officially described as enormous; and all works producing shipbuilding materials have as much as they can do. Great activity prevails in the small iron goods and hardware branches; and since the Leipzig spring fair there has been an extraordinary demand for steel goods. The engineering firms report not yet having filled orders booked last autumn. The demand for heavy and middle-weight locomotives is very great; but the Trade Ministry (supported by the Soviet railroad representative Lomonosoff) states that German prices of locomotives exceed American. The prices for tubes, which were last raised on April 1, have not been altered since. Works report having orders for six months ahead. The same is true of the screw and rivet branches. Steel rail prices were last raised on April 1—heavy rails to 10,110 marks per metric ton (formerly 7275 marks), grooved rails to 10,800 marks, and mine rails to 9500 (formerly 7150 marks). Most prices are conditional, and are subject to automatic increase in case of further advances in the price of coal.

Steel Exports at 1921 Rate

Exports of iron and steel and their products, except machines, totaled in the first quarter of this year 606,431 metric tons. The figures for the same quarter of 1921 have not yet been published and all trade figures for January-April, 1921, are lacking. January, 1922, exports were 221,743 tons, February 172,709 tons, March 211,979 tons. The average for the eight months

of 1921 beginning with May was 203,000 tons. Value of exports for the first quarter of this year was (in paper marks) 7,486,294,000 marks. Exports of pig iron, ferromanganese, ferrosilicon and other alloys and scrap iron totaled 61,698 tons, which low figure is due to severe rationing of export by the Iron Foreign Trade Board. Bar iron, girder and band exports were 139,266 tons. Exports of machines were 112,199 tons, valued at 3,646,838,000 paper marks. Machinery exports tend to increase. The January figure was 32,695 tons, February 39,257 tons, March 40,247 tons. Iron and steel imports are rising, being in March 125,158 tons against 81,878 tons in February. The main cause of this increase is pig iron importing, due to the home shortage. Whereas in January pig iron imports were only 3637 tons, and in February only 3927 tons, the March figure rose to 18,652 tons.

Manufacturing consumers of pig iron complain that the big dealers who represent the Pig Iron Syndicate are taking advantage of the shortage to impose unreasonable conditions, such as payment in advance or security for the full amount of the order, etc.; and further that by making secret payments some firms get their deliveries ahead of other firms whose orders were booked earlier.

Austrian Magnesite Supply

An agreement has been made between a German group and the Styrian Magnesite Co. of Austria, whereby the Germans secure the company's output of caustic magnesite for a long time ahead. This company of late has supplied Scandinavia and America.

Concerning Germany's iron ore production, it is officially reported: In 1913 in all Germany were 328 separate ore-producing concerns employing 42,296 persons. Production was 28,607,900 tons. In 1913, in the present German area, were 271 concerns employing 25,861 persons, and producing 7,439,000 tons. This means that before the war roughly three-fourths of Germany's home ore was produced in territory (mainly Alsace-Lorraine) which is now lost. In 1919 the ore production reached the lowest level at 6,153,800 tons; in 1920, the last year reported, it had recovered to 6,361,600 tons. The number of ore-producing concerns in the reduced Germany of 1920 was 331, or more than in all pre-war Germany; but the average production per concern is much smaller. The average iron content in 1920 was 33.51 per cent against 32.17 per cent in 1913, Lorraine minette having a relatively low iron percentage.

British Steel Man Stresses Need of Reciprocity in Exports

Arthur H. Pollen, chairman Burton, Griffiths & Co., Ltd., and Birmingham Small Arms Tools, Ltd., Birmingham, England, who is now on a tour of the United States in the interest of his company, and is visiting a large number of machine tool and other metal working manufacturers in the United States already represented in England by his firm, expects to spend the next seven weeks in covering New England and the Central West. He is particularly impressed with the position of the United States today as a creditor nation and with the responsibilities attendant upon that position. He stresses the necessity for reciprocity in a free interchange of goods, meaning by that the removal of tariff duties. He realizes that fiscal policies of a government are not to be lightly overturned, but contends that business principles must eventually rule.

Mr. Pollen makes special reference to the possibility of permitting certain high-priced articles to enter the United States free of duty, where they would not compete with the great bulk of American manufactures produced on the mass system, but would occupy a field of their own. With particular reference to motor cars such as the Daimler, this, incidentally, handled by his firm, he states that competition with American makes would be almost negligible. He emphasized the

fact that it was only by adopting this policy at the time, a hundred years ago, when Great Britain became the great creditor nation of the world, that British industries were built up in advance of all others. He expressed the firm conviction that it is only by helping "the other fellow" that one can help oneself in the highest measure, and that, in providing opportunities for foreign manufacturers to send in their goods, one result would be an increased sale of American goods elsewhere. If the outsider cannot make money, he cannot buy what we have to sell.

Mr. Pollen reports the British machine tool trade as in even worse position than the American, but is not without hopes for the future. He believes that a rehabilitated Germany is absolutely essential to the world's progress and puts at ten to fifteen years the time when Russia will be again upon her feet as a producing member of the world's comity of nations. He expects Britain to pay her war debts in goods—not in gold—"for there is not enough gold in the world to do it, and credits must be freely used."

Two modern buildings in London are now occupied by Burton, Griffiths & Co., Ltd., and the associated companies represented by them. Both are on Chapter Street near Vauxhall Bridge Road. One is used as offices and warehouse, while the other, a new building, is occupied by wholesale show rooms. Among the firms affiliated with the company, one of the best-known in the United States is William Jessup & Sons, Ltd., tool steel manufacturer.

Direct-Reading Resistance Thermometer

The Brown Instrument Co., Philadelphia, has placed on the market a direct-reading resistance thermometer for use where temperatures must be known with extreme accuracy and maintained constantly within close limits. It is a high temperature instrument in which the whole temperature scale may cover 25 deg. only.

In a given process, for example, it may be necessary to maintain a temperature of 820 deg. Fahr., with 750 and 900 deg., respectively, the maximum range of variation. Using the thermometer illustrated, the scale can be graduated from 750 to 900 deg., each division being equivalent to 1 deg., and thus permitting of close accuracy in the readings.

The fundamental principle of the resistance ther-



Direct-Reading Resistance Thermometer for Use Where Temperatures Must Be Known with Close Accuracy. The whole scale may cover a range of 25 deg. Fahr. only

mometer is the property of metals, except special resistance alloys, of change in resistance with change in temperature. This change can be accurately measured and a scale calibrated to read in degrees of temperature.

The bulb or coil of wire which changes in resistance is usually of nickel for temperatures up to 300 deg. Fahr. and of platinum for higher temperatures up to 1800 deg. The bulb can be very small, a nickel-wire bulb being provided with the active part 1 in. long and 3/16 in. in diameter. This for moderate temperatures can be provided with a protecting tube having an outside diameter of only 1/4 in. Three wires lead from the bulb to the instrument, the three-wire system being intended to eliminate any effect on the indications of the instrument due to changes in temperature along the wiring. The length of the wiring is immaterial.

To check the instrument for the zero reading the left-hand knob is turned to Z, and then to S to check the instrument with a standard resistance at the top graduation on the scale. In the third position the knob is operated directly off the temperature bulb. The rheostat, controlled by the right-hand knob on the instrument, is used for adjusting the voltage. This check of the instrument is recommended daily but need be only every few days.

By using a switch the instrument may be connected to several bulbs located in various places. Used in dry kilns, it can be used to measure both temperature and humidity, one bulb being subjected to the air temperature only, a second bulb being covered by a wick connected to a tank of water. This construction is designed to permit the measurement of both temperature and humidity at great distances.

The Association of Iron and Steel Electrical Engineers will hold its sixteenth annual convention at Cleveland, Sept. 11 to 15, inclusive. A feature of the meeting will be an exhibition in Cleveland's new Public Hall.

BUYING SOFT COAL

Proposed Plan Not to Be Adopted Soon—Price Fixing by Secretary Hoover

WASHINGTON, June 6.—Consolidated purchases of spot bituminous coal by the iron and steel industry will not be undertaken in the immediate future, if at all. The suggestion of Secretary of Commerce Hoover that the industry and the railroads and public utilities consolidate their purposes, each as a separate unit, has been abandoned for the present. Inquiry by the Department of Commerce developed the fact that iron and steel producers had previously gone into the market and bought coal and that, because of the foresight shown, they have an average of 60 days' supplies. It is hoped that with these and their regular contracts, on which it is possible to obtain deliveries, the industry will be able to tide itself over the period of the strike. Should this prove to be the case, the iron and steel industry will not, therefore, participate in the plan of co-operation between the Government and coal operators and consumers with regard to sale and purchase of coal. The consolidated plan of purchases is to be carried out by the railroads and the public utilities which have set up regional committees for this purpose.

However, the iron and steel industry in the course of its current buying apparently will profit by the program worked out through the Department of Commerce providing for the fixing of a maximum price of \$3.50 a ton for coal at the mines in 80 per cent of the present producing fields, while the strike continues. This price pertains to mines in Virginia, West Virginia, Tennessee, and Eastern Kentucky. One extremely important part of the industry, the Pennsylvania district, from which steel producers obtain large tonnages of coal, has not as yet agreed to the plan. The Secretary said that Pennsylvania operators are discussing the idea of joining in the program but have not definitely announced their determination. It also was stated that some operators have not agreed to the maximum of \$3.50 at the mines, among them being producers in Western Kentucky, who are demanding a price of \$4.25. Operators in Alabama will accept the rate of 25c. a ton below the Garfield scale in that district. The prices determined upon and which grew out of a meeting here last week between operators and Secretary Hoover are based on the Garfield scale, but provide for adjustment on account of higher costs because of increased wages and other elements of greater financial outlay. All of the prices, it was stated, are to apply to spot coal only.

In speaking to the operators last week, Secretary Hoover said that the result of the previous conference, held during the preceding week, had been to put a check on the daily rise in prices and that prices have receded from 50c. to \$1 a ton nearly throughout the country. He said that prices to-day vary somewhere from \$2.50 to \$3.50 a ton at the mines in most districts, although there are one or two districts that are still over the \$4.50 level. He said that with the unrestrained operation of the law of supply and demand in a situation such as now exists, the price of spot coal might easily be carried to \$12 or \$15 a ton, which, he said, must be prevented. It is estimated that roughly the maximum of \$3.50 fixed on coal exceeds by 25c. to 75c. the Garfield prices.

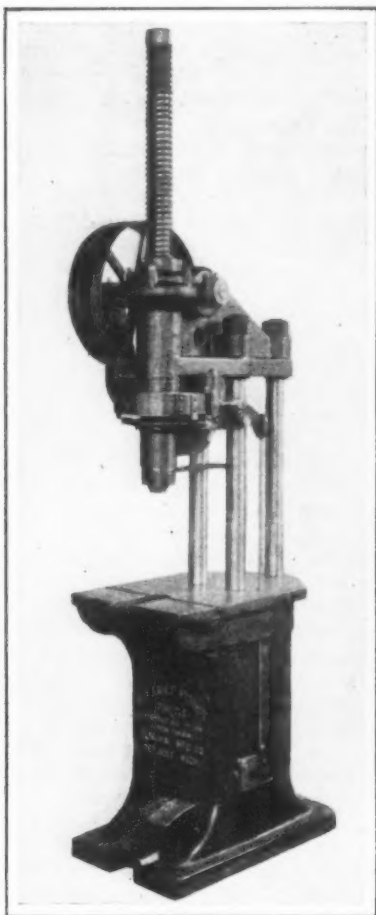
Manganese Ore Shipped

WASHINGTON, June 6.—The entire stock of 11,000 tons of manganese ore has been shipped from Nikolayev, Russia, according to a report received by the Department of Commerce. The proceeds of the sale of this ore, which went to Hamburg, as well as of 32,000 tons of iron ore, will be applied toward the rehabilitation of the iron mines at Krivoi Rog and the manganese mines at Nikopol. Negotiations regarding the disposal of the iron ore are in progress. For the furtherance of the rehabilitation project, the Council of National Economy on March 23 decided to sell 80,000 tons of iron ore and 32,000 tons of manganese ore during 1922.

Press with Flexible Control Feature

A new flexible power press which permits the operator to apply, at will, power from a few pounds to eight tons, is being placed on the market by the General Mfg. Co., Detroit. Because of this flexible control feature, the machine is said to be particularly adapted for straightening, pressing in bushings or assembling parts by press fit. Having a 9-in. stroke, it may be used for push broaching and similar work.

The press is a three-post machine mounted on a fixed-height base, as shown in the illustration, and having the table 30 in. from the floor. Two of the posts are in tension and the third, under compression. The ram is threaded with a long lead acme thread and runs



Flexible Power Press. Pressure from a few pounds to 8 tons can be applied at will

through a nut 4 in. long, the nut being also the brake drum.

The power is applied to the pulley and transmitted through a worm gear and spline key to the ram. The ram is driven at constant speed in one direction, the nut turning with it until pressure is applied on the foot pedal. This closes the asbestos lined brake band on the nut, and the ram immediately passes down through it until the pressure on the foot pedal is released or the pressure applied by the ram equalizes the pressure applied on the foot pedal. The return stroke is obtained by a spring around the top of the ram, which raises it immediately after operation to its up or normal position, the nut spiraling on the ram.

The height between the end of the ram and the table is regularly 12 in., but can be made to any dimension by a different set of columns and length of control rod. With a pulley speed 300 r.p.m. the ram travel speed is 150 ft. per min. End thrust is taken on a suitable ball bearing between the nut and the main casting.

The working surface of the table is 15 by 18 in. The maximum distance from the table to the end of the ram is 12 in. and the distance from the center of ram to the columns, 9 1/4 in. The table T slot is 5/8 in. wide and the claw foot hole through the table 3 in. The net weight is approximately 1350 lb.

A previous machine of the General company, having a pressure range to 20 tons, was described in THE IRON AGE of Jan. 13, 1921.

Further Research on Coal Ignition Needed

Adoption of a "glow point" as the basis for investigation of the ignition temperature of coal has opened the way, according to Ray W. Arms, whose findings are published in bulletin No. 128 of the University of Illinois, for profitable research. It has long been admitted that coal has no definite temperature at which

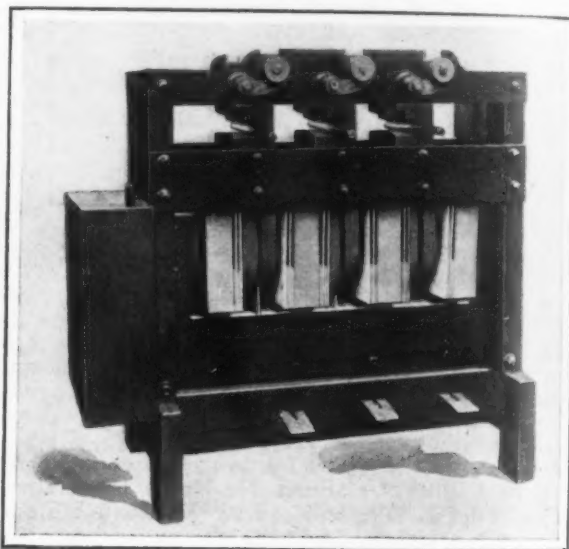
it bursts into flame—this phenomenon depending upon its volatile content, length of time out of the mines, fineness of division and other variable quantities. The point of uniform glow, on the other hand, was selected because it is not affected by ash, moisture, division of particles, light variation from a normal air supply or rate of heating. It seems to appear at a fairly definite point in the temperature scale.

It still remains, however, to discover the definite relation between glow point and the firing qualities of coal. Neither is there an indication that this glow point bears any direct relation to the liability to fire while in storage.

Electric Heater for Forging Operations

For forging operations requiring heating of the stock on the ends or at points along the length of the material, the heating being affected without burning or melting at any point, the American Car & Foundry Co., 165 Broadway, New York, has designed the electric heater shown in the accompanying illustration.

The new equipment is designated as the Berwick two-path electric heater and is built with one, two and three electrodes. It may be built also with four or five electrodes, if required. As now designed the range of heat is from 1 to 8 in., and can be arranged to heat from 3 to 11 in. With slight change from the



Two-Path Electric Heater for Forging or Upset Work. The material is inserted between the top and bottom electrodes, as shown

standard heater, the length of heat can be increased to 16 or 18 in. The No. 3 machine takes diameters of 3/4, 1/2, 3/8 and 5/16 in. for high production work, and the No. 4, 7/8 and 1 1/8 in. diameter stock.

The heater has two separate electrodes, properly insulated from each other. The right-hand electrode has at its two upper ends projecting blocks which overhang but are not permitted to touch the left-hand one. The left-hand electrode is stationary as to vertical motion, but may be adjusted horizontally by means of two stud bolts at the rear of the heater.

The top or right-hand electrode may be adjusted horizontally and at the same time may be moved in a vertical direction. Horizontal motion is by sliding the electrode-clamping device along the shaft, vertical motion being imparted by depressing the pedal, thus causing rotation of the shaft, which in turn, through cams, raises the shaft carrying the electrodes.

Material to be heated is inserted between the top and bottom electrodes. Because of the double path, it is claimed the time of heating is reduced and the possibility of pitting not so great.

Flexibility of the rear portion of the bottom electrode is provided by a spring on the rear of the heater. The top face of the electrode is set on an incline so that when the top electrode is dropped into position, contact is assured at four points on the material.

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On Letting Competitors Live

The Lockwood committee of the New York Assembly, that has done some good work in discovering unlawful combinations and practices in the building trades, both on the part of employers and organized employees, made an excursion into the steel trade last week. The committee's attorney put a good deal of stress, in examining Chairman Gary of the Steel Corporation, on the advantage the Steel Corporation has in its costs. He asserted that the Steel Corporation had a differential in its favor of \$3 to \$5 over its competitors. Some of the daily paper headliners hailed this as a discovery and by way of stirring the reader's interest further added that the Steel Corporation could reduce prices \$3 to \$5 below those of its competitors and still be able to make money!

The fact that the Steel Corporation can make larger profits on a given price for finished steel products than such of its competitors as publish their annual reports has long been in the possession of the public. The man in the street who reads the summaries of these reports in the daily papers can take his pencil and by dividing the Steel Corporation's output into its profits can get a quotient that will run several dollars per ton above the quotient derived from annual reports of independent steel companies. The financial papers have frequently called attention to these differences.

What the attorney of the Lockwood committee wanted to show was that by reason of the differential the Steel Corporation, if it were "ruthless," could underbid its competitors and drive them out of business. This reasoning recalls some of the questions asked in the Stanley committee hearing at Washington ten or a dozen years ago. One Congressman, in questioning an independent steel manufacturer, touched on the danger of allowing the latter's quotations on his products to become known to his more powerful competitors. The Congressman somehow had the notion that if a large consolidation like the Steel Corporation were allowed to get hold of the prices the smaller manufacturer was quoting, it would at once go about quoting lower prices and thus would take all his trade away from him. This cross-examiner would doubtless learn with surprise of conditions

existing in the steel market in the latter part of 1919 and the greater part of 1920, when the Steel Corporation's prices were \$10 to \$30 per ton below those of most of its competitors.

One reason why the Steel Corporation does not get all of the business is that it has only 45 per cent of the capacity. In some finished lines its percentage is quite a little less than this. Another reason is that the Steel Corporation's alert and highly intelligent competitors have made good steel over many years and have accumulated customers who buy from them in preference to others, where quality and price put their steel substantially on all fours with that of other makers. It would be safe to say that 75 to 80 per cent of the steel bought in a given year by any 100 or 1000 buyers would go to the same mills which had furnished 75 to 80 per cent of the steel bought by the same 100 or 1000 buyers in the preceding year.

Other reasons which go back into the history of the steel industry in the past twenty-five years, and reasons which would occur to the mind of any man who has had to do with manufacturing and selling, might be adduced to show why a large company whose costs are less than those of its competitors would not drive them out of business, if it could and could not drive them out of business if it would. There are blast furnaces in the United States whose costs are \$3 to \$5 per ton lower than the costs of some other furnaces. There are producers of paper, brick, clothing, glass, rubber tires, and scores of familiar articles of trade, whose costs are considerably lower than those of their competitors. But this fact does not mean the annihilation of their competitors. It means that competitors must constantly be exerting themselves to get greater economy in production. It is a healthy condition because it figures largely in such a lowering of the prices of a commodity as will lead to its larger use by the public.

The reasons for the advantage the Steel Corporation has in costs are various. Ownership of railroads is without doubt an important factor. Another is the fact that the Steel Corporation has large plants in a number of districts, whereas most of its competitors carry on most of their operations at a single point. As railroad freights

have advanced this advantage of the Steel Corporation has been greatly accentuated. Judge Gary's answer on this point was diplomatic if not all-inclusive. He gave two reasons for letting the Steel Corporation's competitors live: "First, because it was right, and, second, because we had to do it."

The Coal Strike

Not much has occurred in the past two months to show that this year's guessing contest in coal is different from its biennial predecessors. Coal consumers, in laying in stocks, endeavor to guess how long the contest will last, the operators endeavor to guess whether the stocks will exceed the miners' staying power and the miners endeavor to guess whether the general public, through the Government or otherwise, will give them any assistance. At the outset it was expected that this strike would be different, but thus far no important difference has been observable.

Writers and speakers have exhibited some impatience that there has not come forward any cure or partial cure for the economic ills that are said to "afflict" the coal industry, although it is the public rather than the coal industry that bears the burden of the economic loss. On general principles, however, it is hardly to be expected that when a conflict is in progress men's minds should be better able to find a rational and fair solution of a problem than could be found before any contest had been started. The principle here referred to is rather commonly believed to obtain in the case of war.

The great evil in the coal industry is that there are too many mines and too many miners. It has been said that the trouble arises from coal demand being seasonal in character, but if that be true the steel industry is in a more serious condition, for steel is subject to variations in demand which are worse because they are greater and because they are not seasonal. The public knows precisely what the coal seasons are and can govern itself accordingly, whereas the high and low points in steel demand do not fall to particular times in the calendar year.

If there are too many coal mines and too many coal miners some should be eliminated. The high cost mines, of course, should be the ones to go, whereupon the better mines could produce still more economically, but the strike gives many of the high cost mines a new lease on life, and in this respect it intensifies the uneconomical condition.

As to the miners, however, the case is different. It is not entirely a question of the total number of men who expect to be engaged in mining part or all of the year, but is partly a question of how much income the men who do mine coal expect to get out of the operation. That is, some men could count upon mining coal part of the year and engaging in some other work the rest of the time. This practice used to be much more common than it has been in recent years. It is possible that the strike is doing some good in this respect by making men realize that they can do

other work. Obviously the influence of the United Mine Workers has been to discourage the feeling among miners that it is proper to do other work when there is none for them in coal mining. All the preachings of the officials of the organization have been that the coal operators owe the miner what amounts in substance to an annual income and the light employment has been paraded as the sufficient reason why there should be a high rate per ton.

No new issue has been injected into the strike. The condition remains that the union operators are ready to meet their employees district by district, while the United Mine Workers insist on a four-State agreement. At the outset the balance of probability was that the operators would gain their point and the passing of two months of time without any important new factor being injected into the situation has increased this probability.

Activity and Inflation

The majority of the commercial indices show that with the increase of the past few months in industrial and commercial activity there is a very fair movement in business generally. Whether the amount of activity may be regarded "normal" or not depends largely upon the definition of "normal." Apparently a rather common interpretation is that it means the fullest activity that any line of business has ever seen. It is only the minority who regard normal as average and draw the normal line so that the graph of a given activity describes equal areas above and below the line.

Yet a great many men have been fearing that we may have another inflation, after the unfortunate one of 1919-20. It may sound harsh, but it is perhaps not unfair to say that many men have used one standard for their own business and another standard for all other business, have desired more activity for themselves than they have thought would be good for other lines of business. Inflation involves the paying and receiving of unreasonably high prices for commodities or services, and it is human nature to feel that one's own commodities or services are worth more than other commodities and services.

Inflation occurs when there is competitive bidding for materials and services. Delivery premiums are bid for commodities and workmen are paid "bonus" rates. This simply means an attempt to accomplish more in a given time than could be accomplished in the ordinary way.

The best test of industrial activity is the number of men in employment and the amount of work done per man. It has been well established by experience that when there is full employment the quantity of work done cannot be increased by raising wages or paying bonuses. The influence is rather the other way. Therefore when the workers employed full time make up a reasonably full percentage of the total number the limit of industrial activity is reached.

This employment test is much more trustworthy, and much more indicative of what is to be expected in future, than any based on the relation between production and plant capacity.

Making jobs by building factories does not produce men to fill the jobs.

When unemployment was at its height last year its extent was commonly overestimated. In many cases the count was by vacant jobs rather than by idle men. It must be admitted that the number of potential jobs in the United States is much greater than the number of workers. At the present time there is relatively little unemployment of men, though there is much unemployment of plant facilities. For several weeks past "labor scarcity" has been reported from various points.

There is no doubt that a great many men ought to work harder than they are working, for the country to prosper and advance as it used to do, but the general development of a labor scarcity will not produce this desirable condition. Rather it will produce inflation, and that usually means less work and therefore less activity in the physical sense. The money turnover, not the physical turnover, is increased.

We shall do well, therefore, not to hope for such increased physical activity as will tend to produce inflation, but rather hope that circumstances will arise to encourage all men to work harder and more efficiently. By that may come real prosperity, progress and advancement.

Copper and the Japanese Duty

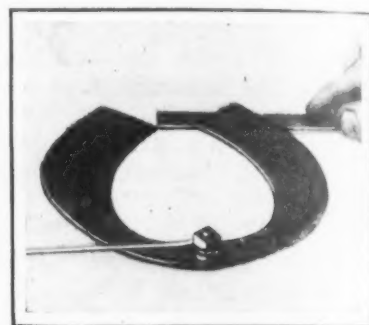
A feature of the export copper market for several years has been the heavy purchases by Japan. In 1919 and 1920 they were 15 per cent and in 1921 10 per cent of the total copper exports. The extent to which the recent increase of nearly 82 per cent in the Japanese duty on copper will affect this movement is naturally of consequence to copper producers. In 1913 Japan supplied its own needs and exported over 63 per cent of its output, importing almost none. In 1920 the situation changed decidedly. Production was only equal to that in 1913, while estimated home needs were nearly 84,000 tons, or three and a half times those of 1913. The result has been, in the past two and a half years, imports of 26,000 to 27,000 tons yearly, mostly American copper, while exports from Japan in 1920 were only one-eighth of the pre-war rate. The new duty is imposed on protective grounds. Copper in speculators' hands, bought at a high price, has been a factor also. That Japanese consumers will have to pay much higher prices goes without saying. There will also be the effect on exports of manufactured copper products. During the war the cost of production in Japan was over 20 cents per pound of refined copper and at present lower labor costs it is probably not less than 15 to 15.50 cents per pound. This compares with a selling price for American copper of about 14 cents f.a.s. Whether the Japanese industry can supply the greatly increased needs of the country is open to serious doubt, saying nothing of the question of quality. The situation in some of its aspects is quite like that which has developed at Washington relative to manganese ore and one or two other items in the metal schedule.

CORRESPONDENCE

Caliper for Bars on Storage Racks

To the Editor: The practice of storing steel bars on racks undoubtedly assists considerably in giving a storeroom a neat and orderly appearance, but where these racks extend upwards for some distance and contain bars of various sizes it is quite an awkward operation to reach up and measure the diameters when some particular size is required.

In one warehouse where job lots of these bars were stored in this way, a special kind of calipers was devised to facilitate the selection. Certain departures



Home-Made Callipers to Measure Bars on Racks

were made from the usual methods of caliper construction, the legs being cut out of sheet metal to the shape shown in the illustration, and joined by a screw, nut and washer. A handle was provided, long enough to reach the topmost rack, this being held to the caliper screw by looping it around and securing with another nut. By means of the nut adjustment the calipers are tightened just enough to allow them to slide freely over the stock and hold the size.

Using this tool has eliminated the necessity for climbing the rack or a ladder when the bars on the upper tiers have to be measured. The calipers, being always closed before using, can be raised to any position with the wire handle, and the vee-shaped end permits them to slide over any size stock when pressed against it. The contact points of the calipers are measured with a scale in the ordinary way to determine the size.

HARRY MOORE.

Rosemount, Montreal, Can.

Radio Service at Chicago

In order to give the maximum of service to its readers, THE IRON AGE, as previously announced, has arranged for the broadcasting of its weekly review of the iron and steel market from radio stations in various parts of the country. At Chicago, the market summary is sent out from the Westinghouse station, KYW, at 6.30 p. m., every Wednesday, by arrangement with the *Chicago Journal of Commerce*. Jose Bornn, managing editor of the latter newspaper, reads THE IRON AGE summary at that time in conjunction with other business news of the day. Thus subscribers having receiving sets have the opportunity of hearing the most important of the market news several hours in advance of the arrival of THE IRON AGE by mail.

July Sheet Bar Price

YOUNGSTOWN, June 6.—Heavy coverings are expected to follow the announcement by the Republic Iron & Steel Co. that it will enter July sheet bar business at \$35. Non-integrated sheet makers have been under pressure from consumers for some time to name third quarter prices.

MANGANESE ORE DUTY

Senate Restores House Rate—Proposed Action on Ferromanganese

WASHINGTON, June 6.—Upsetting the action of the committee on finance placing manganese ore on the free list, the Senate yesterday as a committee of the whole restored the House duty of 1c. per lb. of manganese content. The fight to restore the House provision was led by Senator Nicholson of Colorado.

Because of the restoration of the House duty on manganese ore, Senator McCumber, chairman of the Finance Committee, has proposed restoration also of the House duties on ferromanganese, but action on this has been deferred. Considerable opposition has risen to the House ferromanganese duties, and indications are that while the Senate duties will be increased, they will not be raised to the level of those adopted by the House. The House duties were 2 1/5c. per lb. on the metallic manganese content when containing 45 per cent manganese or more. The Senate reduced this to \$2.50 per ton when containing more than 1 per cent carbon and an ad valorem duty of 20 per cent was provided when containing more than 30 per cent manganese and not more than 1 per cent of carbon.

Slow Progress in the Tariff Bill

WASHINGTON, June 6.—House duties on magnesite were restored by the Senate in the Committee of the Whole last week as the result of attacks made on the lower duties which had been fixed by the Committee on Finance. The attack was led by Senator Poindexter of Washington. The duty on crude magnesite was increased from 5/16c per lb., as provided in the Senate amendment, to 1/2c per lb. and the rate on dead-burned and grain magnesite increased from 4/10c per lb. to 3/4c per lb. Because of the changes made in the magnesite rates, corresponding increases were made in rates on fire brick, magnesite brick and related commodities. The paragraph covering these items was struck out and a new one adopted, so that chrome and fire brick, not specially provided for, takes a duty of 25 per cent and magnesite brick takes a duty of 4/10c per lb. and 10 per cent ad valorem. The original Senate provisions provided a duty of 15 per cent on fire brick, but the other duties were the same as those adopted in the rewritten paragraph.

The Senate is shifting from one schedule to another and is making extremely slow progress. It has disposed of only comparatively minor items in the metal schedule during the past week. Among the changes it has made in that period are: Electric storage batteries (paragraph 320), rate reduced by committee from 45 to 40 per cent; jewelers' and other anvils weighing less than five lb. each, reduced by amendment offered by Senator Robinson, Democrat, Arkansas, from 45 to 20 per cent (325); rivets, studs, etc., reduced by committee from 40 to 30 per cent (332).

Other paragraphs passed upon and left unchanged were the following: antifriction balls, roller, metal balls, etc. (321); steel rails, tie plates, etc. (322); fountain pens, etc. (353); steel wool and shavings (334).

Coal Operators Meet

UNIONTOWN, PA., June 6.—Operators representing most of the independent fuel production in the Connellsville region, at a meeting called at the instance of Congressman Samuel A. Kendall, indicated that a maximum price for coal under \$4.50 a ton would be unacceptable. A committee was appointed to confer with Secretary of Commerce Hoover at Washington on Wednesday morning. A higher price is necessary in this field than in the others, operators contend, because of the heavy expense in employing guards and in guarding mine property, specially in view of dynamiting attacks which have been made sporadically and with growing frequency during the past fortnight.

UNIONS ARE SUABLE

Supreme Court, However, Sets Aside Damages Against National Organization

WASHINGTON, June 6.—Organized labor has been dealt a severe blow by the decision yesterday of the Supreme Court of the United States holding that labor unions are not exempt from prosecution under the Sherman anti-trust law. It is a direct and extremely decisive reply to organized labor and other class interests which have sought immunity from prosecution and is as equally an effective answer to legislators who have sought to have legislation passed exempting organized labor, agricultural organizations, etc., from prosecution. But it has been maintained consistently by leading lawyers that such exemptions do not and cannot apply and go no further than to prevent the use of certain appropriations for purposes of prosecutions and no further.

The decision of the Supreme Court, however, effectually clears up the issue as to immunity of certain groups and was handed down in connection with the long-awaited finding in the well-known Coronado Coal Co. case. The case was brought by the United Mine Workers of America against that and other companies and resulted from strikes in Arkansas in 1914.

The decision sets aside damages because acts incited which caused destruction of property were not for the purpose of restraining interstate commerce.

Chief Justice Taft delivered the opinion of the court, which held that labor organizations can be held liable for property and other damages caused by their members during strikes. In discussing the suability of national and international unions, when responsible for injuries done, the Chief Justice pointed out that in common law unincorporated organizations could be sued as individuals, but from necessity of existing conditions it was utterly impossible to do justice otherwise than by holding labor unions suable. The judgment against the United Mine Workers was for \$427,820, and ranked only second in importance to the Danbury hatters' case as a blow at organized labor for committing acts of violence or attempting boycott.

Railroad Equipment Business

Purchases of 3700 cars and repair orders for 4000 cars have come to light since the report in last week's issue. These include the following:

Atlantic Coast Line, 700 box cars, to the Standard Steel Car Co.

Pere Marquette, 500 box cars, to the Pressed Steel Car Co. Baltimore & Ohio, 1000 gondolas, to the Cambria Steel Co.; repairs to 1000 gondolas and 1000 hopper cars to the Pressed Steel Car Co., and repairs to 1000 coke and 1000 box car bodies to the Standard Steel Car Co.

Seaboard Air Line, 900 steel underframe box cars, to Pressed Steel Car Co., and 1000 phosphate cars to the Magor Car Corporation.

Chesapeake & Ohio, 500 ventilated box cars, to the Newport News Shipbuilding & Dry Dock Co.

The active car business includes the following:

Buffalo & Susquehanna, 200 gondola bodies.

Tennessee Central, 350 composite gondolas.

New York, Chicago & St. Louis, 1000 automobile cars.

Northern Pacific, 1750 cars of various types.

Illinois Central, repairs to 4000 cars.

Missouri Pacific, 2000 automobile cars.

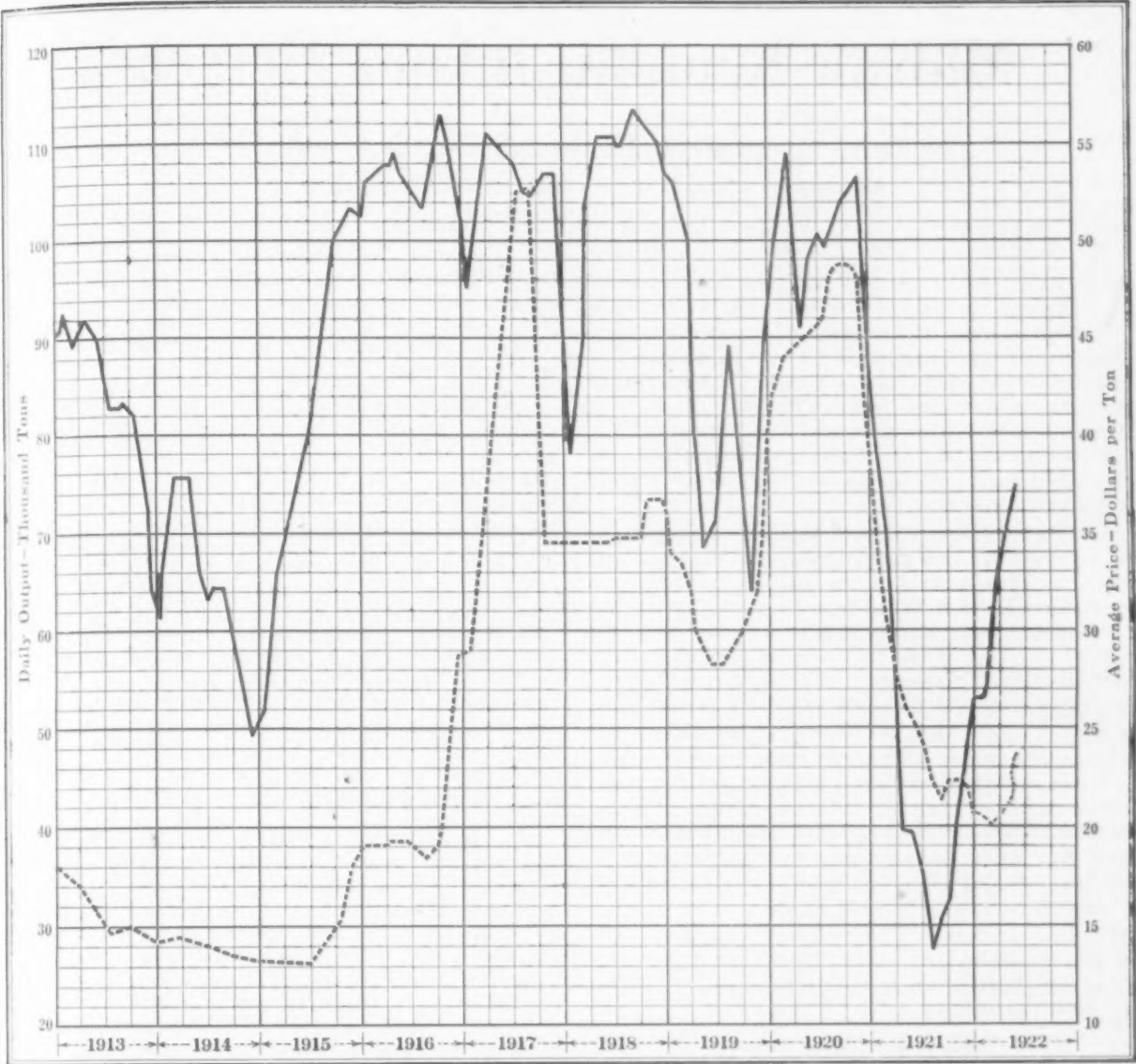
Wabash, 2050 car bodies and 1500 automobile box cars. Nashville, Chattanooga & St. Louis, 500 box cars, 150 stock cars and 100 gondolas.

Erie, repairs contemplated on 5000 or more box cars.

Chicago Great Western, 500 box cars.

The New York Central, repairs to 2000 cars.

A partnership has been established in Chicago by J. M. Kryl, present president of the Kryl Bridge and Crane Works, Chicago and W. H. Eichelman, until recently chief engineer of the Hamler Boiler and Tank Co., Chicago. Both men are graduate engineers of considerable experience in fabricating steel plate and structural steel.



The Full Line Represents the Daily Production of Pig Iron and the Dotted Line Is the Average of the Price Per Ton of No. 2 Southern Pig Iron at Cincinnati, Local No. 2 Iron at Chicago and No. 2X Iron at Philadelphia

Diagram of Pig Iron Production and Prices

The fluctuations in pig iron production from 1913 to the present time are shown in the accompanying chart. The figures represented by the heavy line are those of daily average production by months of coke and anthracite iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnaces in Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

Production of Coke and Anthracite Pig Iron in the United States by Months, Beginning Jan. 1, 1918—Gross Tons

	1918	1919	1920	1921	1922
Jan. . .	2,411,768	3,302,260	3,015,181	2,416,292	1,644,951
Feb. . .	2,319,299	2,940,168	2,978,879	1,937,257	1,629,991
Mar. . .	3,213,091	3,090,243	3,375,907	1,595,522	2,035,920
Apr. . .	3,288,211	2,478,218	2,739,797	1,193,041	2,072,114
May . .	3,446,412	2,108,056	2,985,682	1,221,221	2,306,679
5 mos. .	14,678,781	13,918,945	15,095,446	8,363,333	9,689,653
June . .	3,323,791	2,114,863	3,043,540	1,064,833	.....
July . .	3,420,988	2,428,541	3,067,043	864,555	.....
Aug. . .	3,389,585	2,743,388	3,147,402	954,193	.....
Sept. .	3,418,270	2,487,965	3,129,323	985,529	.....
Oct. . .	3,486,941	1,863,558	3,292,597	1,246,676	.....
Nov. . .	3,354,074	2,392,350	2,934,908	1,415,481	.....
Dec. . .	3,433,617	2,633,268	2,703,855	1,649,086	.....
Ttl. yr. *	38,506,047	30,582,878	36,414,114	16,543,686	.....

*These totals do not include charcoal pig iron. The 1921 production of this iron was 94,730 tons.

Henry L. Exstein Co., Inc., has opened an office in the Woolworth Building, New York, and will deal in billets, pig iron, coal, coke and iron and steel scrap.

Blast Furnaces Ready to Start

A number of Valley blast furnaces would be started at once, if coke supplies were available. Sharon Steel Hoop Co., Trumbull-Cliffs Furnace Co. and Struthers Furnace Co. are among the furnace interests which have been seeking coke. The Trumbull stack has been supplied since it was first blown in Jan. 16 last, by the Youngstown Sheet & Tube Co. A reciprocal arrangement is in effect between the two interests, whereby the Trumbull company has been furnishing coal in part for the Sheet & Tube by-product coke ovens. Another interest which recently put on an additional furnace has entered into a similar agreement with a Valley coke producer, with respect to coal supply, its own coke oven capacity being insufficient to meet the consumptive requirements of all of its stacks.

Noise in its cumulative effect probably represents one of the most active causes of fatigue and therefore is one of our great industrial wastes, according to Prof. Henry J. Spooner, London, England, a member of the international committee on industrial fatigue. He is authority for the statement that in several plants where noise reduction was practically forced, the owners had to admit a prompt and material increase in output. The contention is that the assault of violent noise upon the delicate membranes of the ear results in exhaustion of the auditory nerves and puts the faculty of attention under strain. This soon results, it is added, in a liability to error, which may increase spoilage and probably has a marked effect upon the number of shop accidents.

Midvale-Republic-Inland Merger

The Three Companies to Be Brought Together in the North American Steel Corporation—Consolidation May Take in Other Properties

AS the result of negotiations that have been in progress for months it is now expected that the Midvale Steel & Ordnance Co., the Republic Iron & Steel Co. and the Inland Steel Co. will be merged. Announcement that a plan for the merger had been agreed upon was made in New York on Thursday, June 1, by Thomas L. Chadbourne, attorney, who, in conjunction with some of the leading officers of the companies involved, had been working on the consolidation project for the past six months.

In THE IRON AGE of Dec. 8 reference was made to the proposal as first made public. It then contemplated the consolidation of the Midvale, Lackawanna, Youngstown Sheet & Tube, Republic, Steel & Tube Co. of America, Inland and Brier Hill steel companies. In May the purchase of the Lackawanna Steel Co. by the Bethlehem Steel Corporation and the decision of the Youngstown Sheet & Tube Co. not to go further with the merger plan reduced the number of companies under consideration to five. When the three-company agreement was announced on June 1 it was stated that negotiations were pending for the acquisition of other properties (reference being made presumably to the Brier Hill Steel Co. and the Steel & Tube Co. of America). It was added that regardless of the outcome of these negotiations Midvale, Republic Iron & Steel and Inland proposed to proceed with the plan. The bankers are Kuhn, Loeb & Co., New York. The name of the consolidation will probably be the North American Steel Corporation.

Basis of New Stock Issue

The official announcement outlined only in general the basis on which the three companies will come together. It will be necessary before the new organization is formed and its personnel decided to have the plan of consolidation approved by the stockholders of the respective companies. The terms of the plan as given in the first announcement are as follows:

"All existing obligations of the three companies are to be assumed by the unified company. Existing preferred and common stocks will be changed into preferred and common stocks of the unified company. The new preferred stock is to have a par value of \$100 per share, is to be 7 per cent cumulative, and is to be redeemable at \$115 per share and accrued dividends, and is to be convertible for twelve years into new common stock at the rate of five shares of new common for four shares of new preferred. The common stock is to be without par value.

"All assets of the three companies are to be owned by the unified company, except the Nicetown plant (the armor making ordnance and forging plant) of the Midvale Steel Co., which is to be transferred to a separate company with a capital of 500,000 shares without par value.

"Participation in the new stock will be as follows:

"Under the plan Midvale company stockholders are to receive 75 per cent in new common stock and 25 per cent in stock of the company formed to take over the Nicetown plant.

"Republic Iron & Steel preferred stockholders are to receive dividends in cash up to the date when the new preferred dividend begins to accrue, and 100 per cent in new preferred stock.

"Republic Iron & Steel common stockholders are to receive 170 per cent in new common stock.

"Inland company stockholders are to receive 25 per cent in new preferred stock, which is to be purchased

from them at \$95 per share, and 70 per cent in new common stock.

"It is intended to provide \$20,000,000 additional cash working capital by the sale of common stock."

The Constituent Companies

The Midvale Steel & Ordnance Co. is itself a consolidation, formed in October, 1915, to take over the Midvale Steel Co., Nicetown, Pa., manufacturer of armor plate, forgings, steel castings and alloy steels, and the Worth Bros. Co., whose mills at Coatesville, Pa., had long been an important factor in the plate trade. In February, 1916, Midvale acquired the Cambria Steel Co., which through its predecessor, the Cambria Iron Co., goes back to the eighteen-fifties. First a Bessemer rail mill, the steel plant at Johnstown gradually built up a diversity of products, successively going into bars, structural shapes, plates and wire. The Midvale organization largely goes back to Carnegie Steel Co. days, W. E. Corey (second president of United States Steel Corporation) being chairman; A. C. Dinkey (president Carnegie Steel Co., 1903-1916), president, and W. B. Dickson (vice-president United States Steel Corporation until 1911), vice-president.

The Republic Iron & Steel Co. represents an evolution from iron products to steel. At its organization in 1899, when consolidations were coming thick and fast, it was made up of a score or more of iron rolling mill companies. In time operations, apart from the Chicago district and Alabama (where the company has three merchant blast furnaces and extensive ore and coal holdings), centered at Youngstown, Ohio. There a Bessemer steel plant was built first and later five modern blast furnaces and extensive open-hearth plant. The finished product was chiefly bars, but under the steady expansion that has gone on at Youngstown other lines have been added—steel pipe, plates and sheets, the last named representing the acquisition of the Deforest Sheet & Tinplate Co. at Niles, Ohio. John A. Topping, chairman, and T. J. Bray, president, have had the direction of the company's policy and operations in the period of its greatest expansion. Mr. Topping called the first meeting of the companies which were considered in the beginning in connection with the so-called seven-company merger proposal.

The Inland Steel Co. represents a remarkable evolution from a small rolling mill company. The mill was first built at Chicago in 1873 by the Chicago Steel Works, which the Inland Steel Co. succeeded, and was moved to Chicago Heights in 1893. The original product was agricultural shapes and the Chicago Heights mill is still in existence. In 1901 an open-hearth steel plant was started at Indiana Harbor, Ind., sheets being the finished product. The growth was rapid and in time bar, structural shape and plate mills were added. A blast furnace was built in 1906-7, a second was added in 1912 and a third in 1917. Iron ore and coal properties, with by-product coke ovens, were a natural development. In the past year the company has built a rail mill. The Chicago district location of the Inland plants makes the company an important factor in the merger at a time when Pittsburgh basing and the steady expansion of railroad, agricultural implement and construction demand upon Western steel works have come prominently to the front in the industry. L. E. Block is chairman of Inland Steel Co., and P. D. Block, who was treasurer of the original Chicago Heights company, is president.

About 5,000,000 Tons of Ingots

The steel making capacity of the three-company merger is roundly 5,000,000 tons of ingots per year or substantially that represented by the Bethlehem

Steel Corporation and the Lackawanna Steel Co. The United States Steel Corporation's ingot capacity of 22,700,000 tons per year is about 45 per cent of the total for the country. Reckoning Bethlehem with its Lackawanna acquisition at 10 per cent and the three-company merger at 10 per cent there still remains 35 per cent of the country's steel making capacity. Of this 35 per cent the Jones & Laughlin Steel Co., the Colorado Fuel & Iron Co., the Steel & Tube Co. of America and Brier Hill Steel Co. represent 10.5 per cent. The remaining 24.5 per cent is made up mainly of the capacities of 40 steel companies ranging from 100,000 to 700,000 tons per year. The accompanying tabulation gives pig iron, steel ingot and finished steel capacities of the companies included in the triple merger. It will be seen that the merger represents a large tonnage of the heavier iron and steel products—particularly bars, plates and shapes—and is a competitor also in sheets, wire products and pipe.

Blast Furnaces

	No.	Annual Capacity, Gross Tons
Midvale { Coatesville	3	450,000
{ Johnstown	11	1,750,000
Republic { Northern	8	1,200,000
{ Southern	3	325,000
Inland	3	500,000
	28	4,225,000

Steel Works

	O. H. Furnaces	Converters	Annual Cap., Gr. Tons Ingot
Midvale	54*	4	2,550,000*
Republic	14	2	1,395,000
Inland	22	—	1,000,000
	90	6	4,945,000

*Johnstown and Coatesville plants, Nicetown plant, 186,750 tons, not being included in merger.

Rolled Products—Annual Capacity, Tons

	Midvale	Republic	Inland	Total
R.I.'s	300,000	.....	400,000	700,000
Plates	.....	50,000	90,000	.....
Shapes	1,290,000	.....	250,000	2,290,000
Bars	.....	510,000	100,000	.....
Sheets	.....	60,000	150,000	210,000
Wire rods	120,000	.....	.....	120,000
Steel pipe	.....	228,000	.....	228,000

Miscellaneous Products

A great variety of minor products, of which the tonnage cannot be given, should be added to those named above. The list includes bolts, nuts, rivets, spikes, shafting and miscellaneous track supplies. The wire rod output of the Cambria subsidiary of Midvale goes into wire and wire nails. The Cambria plant, Gautier department, produces many agricultural and other special products. The Franklin plant at Johnstown also has a car works with annual capacity of 15,000 cars, and a structural shop with annual capacity of 36,000 tons. A steel wheel plant has an annual capacity of 300,000 wheels.

All three companies have coke plants. At Johnstown are 612 by-product coke ovens, with annual capacity of 1,360,000 net tons. The Union Coal & Coke Co., a Cambria subsidiary, has 160 beehive and 240 Belgian rectangular ovens, together representing 360,000 tons per year. The Republic Iron & Steel Co. has 143 by-product ovens at Youngstown, Ohio, annual capacity 700,000 tons, and 646 beehive coke ovens in Fayette County, Pennsylvania, annual capacity 452,000 tons. In Alabama it has 1010 beehive ovens, annual capacity 606,000 tons. The Inland Steel Co. has 130 by-product coke ovens at Indiana Harbor, Ind., annual capacity 500,000 tons.

Iron Ore Holdings

The iron ore reserves of the Midvale, Republic and Inland companies are extensive. The more important holdings of each of the companies are the following:

Midvale Steel & Ordnance Co.: Owns Penn Iron Mining Co., Menominee range, Lake Superior, with about 2,500,000 tons; one-sixth Hanna Ore Mining Co., 4,000,000 tons; one-seventh of the Scranton mine and one-seventh of Plymouth, about 5,000,000 tons; one-fourth of Bennett mine, 5,000,000 tons; one-half of Mahoning mine, 50,000,000 tons; total, about 66,500,000 tons. The company has some 300,000,000 tons of ore in the Buena Vista group on the northeast coast of Cuba—

the same type of clayey ores as the Bethlehem ores in the same region. Midvale also has considerable ore holdings near Sterlington, N. Y., on the New Jersey line.

Republic Iron & Steel Co.: Minnesota holdings include one-quarter interest in Mahoning mine, about 25,000,000 tons; one-half interest in Union, 500,000 tons; one-quarter interest in Zenith, Vermillion range, 2,000,000 tons; one-half interest in York, 250,000 tons; Bray, 1,500,000 tons; Schley, 5,000,000 tons; Victoria, 100,000 tons; Pettit, 1,500,000 tons; Kinney, 500,000 tons; Gordon, 2,000,000 tons. On Michigan ranges are some remaining ore in Cambria, Lillie and Antoine; Sherwood, 15,000,000 tons; also some explorations on west Gogebic, and Town Site mine, Gogebic range, 1,500,000 tons. Total, about 55,000,000 tons. In Alabama the company has large holdings of red and brown ore lands and is operating ten slopes. It has a one-half interest there also in the Potter Ore Co. The Southern ores are used only at Pioneer furnaces, Thomas, Ala.

Inland Steel Co.: On the Mesabi range, Minnesota, the company has Laura mine, 2,000,000 tons; one-half interest in Dunwoody, 5,500,000 tons; one-quarter interest in Bennett, 5,000,000 tons; on the Cuyuna range, Armour, Nos. 1 and 2, 5,000,000 tons. Total, about 17,500,000 tons.

Details of Financing

Some details of the financing of the consolidation and of the basis for the exchange of securities were brought out in the Lockwood committee investigation which is reported on other pages of this issue. Mortimer L. Schiff of Kuhn, Loeb & Co., testifying before the Lockwood committee in New York on June 3, said that the new corporation would have about \$76,000,000 bonds, this amount being made up roundly of \$5,000,000 Inland Steel Co. bonds, \$13,000,000 Republic Iron & Steel Co. bonds, \$50,000,000 Midvale bonds and about \$8,000,000 of 4 per cent guaranteed Cambria Iron Co. stock.

The preferred stock of the new corporation, Mr. Schiff said, would be about \$50,000,000, of which \$25,000,000 represents the present preferred stock issue of the Republic company and \$25,000,000 represents preferred stock which would be bought for cash by a syndicate, the cash going in turn to Inland company stockholders as referred to in the plan. The amount of common stock issued is not determined. Mr. Schiff stated that Inland stockholders would receive about 700,000 shares, Midvale stockholders 1,500,000 shares, and Republic stockholders 510,000 shares; and in addition to this total of 2,710,000 shares of no par value, a syndicate is to buy 505,000 shares of common stock for cash.

The syndicate agreement submitted at the Lockwood committee hearing provides that the syndicate is to purchase \$25,351,475 par value of preferred stock and 505,331 shares of common stock without par value for \$44,064,925. Of this amount \$24,064,925 goes to Inland stockholders and \$20,000,000 provides working capital for the new company.

Pittsburgh Steel Merger Reports

PITTSBURGH, June 5—For a week past reports have been current that Charles M. Schwab, acting either for himself or the Bethlehem Steel Corporation, had secured control of the Pittsburgh Steel Co. and its affiliated company, the Pittsburgh Steel Products Co., as well as of the McKeesport Tin Plate Co. According to Willis McCook, president Pittsburgh Steel Co., and E. R. Crawford, president McKeesport Tin Plate Co., the reports are absolutely without foundation. Mr. McCook says that his company has been invited to join in practically all of the several independent steel company mergers which have been proposed in the past six or eight months, but that all such invitations have been declined. He adds that the Pittsburgh Steel Co. and affiliated companies will continue to stand alone. Mr. Crawford talked in a similar vein with regard to his company going into any merger. He was extremely vigorous in denying a report which had gained considerable circulation that Mr. Schwab had an option on the McKeesport Tin Plate Co.

Iron and Steel Markets

OUTPUT UP, PRICES FIRM

Increase in Steel Greater Than in Pig Iron Car and Structural Business in Good Volume —A Warehouse Advance

Another week of the coal strike has passed with so small a gain in output that makers and users of steel are giving more thought to the immediate future of mill operations and of prices for mill products. The railroad strike agitation following the new order reducing the pay of shop men is an added factor of uncertainty.

Steel prices continue to gain strength as producers are forced to use larger percentages of the high-cost coal from Kentucky and West Virginia. At the same time the Steel Corporation's policy in adhering to the present sheet and tin plate prices on third quarter business serves to hold the market in check. However, in the case of sheets the Corporation limits this action to July shipments in view of the possible shift in the situation meanwhile.

Pig iron output in May continued the gain shown in each month since January. At 2,306,679 tons last month, or 74,409 tons per day, against 2,072,114 tons in April, or 69,070 tons per day, there was a gain of nearly 8 per cent. Over January, May shows an increase of 40 per cent.

There was a net gain of 13 in active furnaces last month, 175 furnaces with a daily capacity of 77,520 tons being in blast on June 1, against 162 furnaces with a daily capacity of 72,875 tons on May 1. Production is now at the rate of 28,300,000 tons per year, against 16,700,000 tons in 1921. The steel ingot figures for May will show a considerably larger increase than that in pig iron, owing to the heavy percentage of scrap now being used.

That coke supply is still ample appears from the blowing in of two furnaces in the past week, one near Pittsburgh and one near Youngstown. In both Pittsburgh and Youngstown districts the average of Steel Corporation and independent steel works operations is close to 75 per cent.

Some blast furnace coke can be had at \$6.50, but \$7 is more common. In general the fuel market is stiffer under the demand released by the price announcements at Washington.

The course of prices is uneven. Bars are drawing away from other heavy products and at Pittsburgh, while 1.60c. is still heard of, 1.70c. is more common for definite and early delivery. In structural steel, while 1.60c. and 1.70c. are early delivery prices, there are fabricated contracts that point to 1.50c. steel.

Cleveland, Pittsburgh and New York warehouses made an advance this week of \$2 per ton on plates, shapes and bars and \$5 on hoops and bands.

With no sign of a let-up in the demand for motor cars, the automobile industry continues to be a free buyer of steel, and in other quarters there is more stir, not omitting agricultural implement makers.

Very little buying is reported in the pig iron

market and there are some requests for delay of shipments until the reduced ore freights become effective July 1, but prices are firm and Alabama iron is established at \$18.50, an advance of 50c. The most pronounced dullness prevails at Pittsburgh. Stocks on Alabama yards June 1 were only 60,000 tons, compared with 81,000 on May 1.

In railroad cars, 3700 were bought in the past week, and repair orders for 4000 were placed, and pending business covers 10,000 cars and 11,000 car repairs.

Fabricated steel contracts closed called for 23,000 tons for 29 bridge and building projects and 9700 tons was added to the pending list for 15 projects.

Iron ore sellers at Cleveland are still in doubt as to prices for 1922. A 10 per cent reduction in freights from lower lake port to furnaces and a 10-cent reduction in vessel rates have come out in the week, but the upper lake ore rates have not come down as expected.

German pig iron was advanced again on June 1. Finished steel prices remain as of April 1. German steel exports have averaged 200,000 tons per month for ten months, but are now falling slightly.

Close competition has developed between Welsh and American tin plates in South America. Wales has just taken 350,000 boxes of oil plates in the Orient.

THE IRON AGE composite price of pig iron is now \$23.79 per gross ton, 8c. higher than a week ago and 33c. higher than a month ago. The composite price for finished steel is 2.141c. per lb. after remaining at 2.127c. for three weeks. It is one-fifth less than it was a year ago, whereas the pig iron price is higher, roughly one-tenth, than the figure of early June, 1921.

Pittsburgh

Prices Strong Owing Largely to High Costs— Steel Bars Advance

PITTSBURGH, PA., June 6.

Steel prices continue to gain strength chiefly because of the factor of costs created by the fuel situation. With the miners' strike, now in its third month, showing no signs of a definite break and with the steel industry now feeling the effect of the high costing Southern coal, which it is forced to use more freely as stocks of low priced fuel become depleted, the disposition is to seek prices commensurate with the higher producing charges. There are reports from the Connellsville region of miners lately inducted into the union having told the union organizers that unless strike benefits were immediately forthcoming they would abandon the union and go back to work. The strike would last no time in the Connellsville district if this sentiment were at all general. The trouble is that the non-union miners who are out seem to fear that if the strike fails, it will mean lower wages for them as well as the miners in the union districts.

The Steel Corporation appears to be somewhat better fortified in the matter of coal supplies than some of the independent producers, and it is pursuing a conservative course in regard to advancing prices. This is evident from its failure to make any change in tin plate prices for the third quarter and last half,

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
No. 2X, Philadelphia...	\$26.26	\$26.26	\$26.26	\$25.50
No. 2, Valley furnace...	24.00	24.00	24.00	22.50
No. 2, Southern, Cin'ti...	23.00	22.50	22.00	26.50
No. 2, Birmingham, Ala...	18.50	18.00	17.50	22.00
No. 2, foundry, Chicago*	23.00	23.00	22.00	21.50
Basic, del'd, eastern Pa...	25.00	25.00	23.50	25.00
Basic, Valley furnace...	25.00	25.00	25.00	21.00
Valley Bess., del. Pitts...	26.96	26.96	26.96	24.96
Malleable, Chicago*	23.00	23.00	22.00	21.50
Malleable, Valley	24.50	24.50	24.50	23.00
Gray forge, Pittsburgh...	25.46	25.46	25.46	23.46
L. S. charcoal, Chicago...	29.00	29.00	28.00	37.50
Ferromanganese, seaboard	67.50	67.50	65.00	75.00

Rails, Billets, etc., Per Gross Ton:	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
O-h. rails, heavy, at mill	\$40.00	\$40.00	\$40.00	\$47.00
Bess. billets, Pittsburgh...	35.00	35.00	33.00	37.00
O-h. billets, Pittsburgh...	35.00	35.00	33.00	37.00
O-h. sheet bars, P'gh...	35.00	35.00	33.00	39.00
Forging billets, base, P'gh	40.00	40.00	37.00	42.00
O-h. billets, Phila...	40.74	40.74	37.24	42.74
Wire rods, Pittsburgh...	38.00	38.00	38.00	48.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb...	1.70	1.70	1.50	2.20
Light rails at mill...	1.50	1.50	1.50	2.20

Finished Iron and Steel,	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	1.96	1.96	1.96	2.25
Iron bars, Chicago...	1.70	1.70	1.65	2.25
Steel bars, Pittsburgh...	1.70	1.60	1.60	2.10
Steel bars, Chicago...	1.75	1.70	1.65	2.48
Steel bars, New York...	1.98	1.98	1.98	2.48
Tank plates, Pittsburgh...	1.60	1.60	1.50	2.00
Tank plates, Chicago...	1.75	1.70	1.65	2.38
Tank plates, New York...	1.98	1.98	1.88	2.38
Beams, Pittsburgh...	1.60	1.60	1.50	2.20
Beams, Chicago...	1.75	1.70	1.65	2.58
Beams, New York...	1.98	1.98	1.88	2.58
Steel hoops, Pittsburgh...	2.40	2.25	2.00	2.75

Sheets, Nails and Wire,	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.15	3.15	3.15	3.85
Sheets, galv., No. 28, P'gh	4.15	4.15	4.15	5.00
Sheets, blue an'd, 9 & 10.	2.40	2.40	2.40	2.90
Wire nails, Pittsburgh...	2.40	2.40	2.40	3.00
Plain wire, Pittsburgh...	2.25	2.25	2.25	2.75
Barbed wire, galv., P'gh...	3.05	3.05	3.05	3.85
Tin plate, 100-lb. box, P'gh	\$4.75	\$4.75	\$4.75	\$6.25

Old Material, Per Gross Ton:	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
Carwheels, Chicago	\$18.25	\$18.00	\$18.50	\$13.50
Carwheels, Philadelphia...	17.00	17.00	16.50	18.00
Heavy steel scrap, P'gh...	17.00	17.50	17.50	13.00
Heavy steel scrap, Phila...	15.00	15.00	14.50	11.50
Heavy steel scrap, Ch'go...	14.50	14.50	15.25	11.50
No. 1 cast, Pittsburgh...	18.50	18.50	18.50	17.00
No. 1 cast, Philadelphia...	19.00	18.50	18.50	17.50
No. 1 cast, Ch'go (net ton)	16.00	16.00	16.25	13.00
No. 1 RR. wrot, Phila...	17.00	17.00	17.00	15.00
No. 1 RR. wrot, Ch'go (net)	12.50	12.75	13.00	10.00

Coke, Connellsville, Per Net Ton at Oven:	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
Furnace coke, prompt...	\$6.50	\$6.00	\$6.00	\$3.00
Foundry coke, prompt...	7.00	6.50	6.00	4.50

Metals,	June 6, 1922	May 30, 1922	May 9, 1922	June 7, 1921
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	14.00	13.87½	13.00	13.00
Electrolytic copper, refinery	13.75	13.62½	12.75	13.00
Zinc, St. Louis...	5.32½	5.25	5.00	4.55
Zinc, New York...	5.67½	5.60	5.35	5.05
Lead, St. Louis...	5.50	5.45	5.15	4.50
Lead, New York...	5.80	5.75	5.35	4.75
Tin (Straits), New York...	32.50	31.25	30.62½	29.00
Antimony (Asiatic), N. Y.	5.25	5.37	5.37½	5.20

*The average switching charge for delivery to foundries in the Chicago district is 70c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Composite Price, June 6, 1922, Finished Steel, 2.141c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	May 29, 1922, 2.127c. May 9, 1922, 2.098c. June 7, 1921, 2.679c. 10-year pre-war average, 1.689c.
These products constitute 88 per cent of the United States output of finished steel	

Composite Price, June 6, 1922, Pig Iron, \$23.79 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	May 29, 1922, \$23.71 May 9, 1922, 23.46 June 7, 1921, 22.00 10-year pre-war average, 15.72
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while it continues the present sheet prices for the first month of the third quarter. Advances in hoops, bands and strips by independents have not yet been followed by the Steel Corporation, although it is probable that it will adopt the advance when it becomes fully established. Bars again are drawing away in price from the other heavy tonnage products. While 1.60c. base, Pittsburgh, is the quotation of the Steel Corporation, and some of the independents here and in Youngstown, the most common price on tonnages carrying early and specified delivery is 1.70c., Pittsburgh.

Semi-finished steel is very scarce, steel skelp in particular. Renewed talk of a new pipe discount card, advancing prices, is heard. Makers of nuts, bolts and rivets also express the opinion that present quotations soon will be supplanted by higher ones.

Fuel supplies still appear to be ample for the maintenance of recent operating schedules and there are two more blast furnaces active this week than there were a week ago. The Pittsburgh Steel Co. and the Brier Hill Steel Co. each put on furnaces and the Carnegie Steel Co., which still has 30 furnaces on, not yet having put off one Isabella furnace as planned, is planning to put on a furnace soon at one end of the Monongahela River works. This company has about 75 per

cent of its ingot capacity active and independent units here and in nearby districts are doing about as well.

The pig iron market is dull to the point of stagnation with prices showing no material change. Scrap prices are inclined lower because of the lack of demand, but fuel prices once more are on the upgrade, due to increased buying by consumers who had been out of the market a brief period, pending the results of the conference in Washington May 31.

Pig Iron.—Business still is at a standstill. Melters, notably of foundry iron, appear to have fairly adequate supplies and are making them do until there are definite developments in connection with ore prices, freight rates and the coal strike. Likewise, there is little or no disposition on the part of producers to seek forward business until there is some light on these matters. The market is purely a waiting one. Trading is so light in foundry iron that the sale of a carload is something of an event. A Meadville, Pa., melter recently closed on 500 tons of malleable iron, the business going to a Buffalo furnace at \$2 per ton below the price quoted by Valley furnaces. There is very little difference between the rate from the Valley and Buffalo to Meadville. Starting up of furnaces yesterday by the Brier Hill Steel Co., Youngstown, and

the Pittsburgh Steel Co. brings the total number active in this and nearby districts to 74 out of a total of 140. The Carnegie Steel Co. will blow in another furnace soon and the Youngstown Sheet & Tube Co. plans to blow in one of its Hubbard furnaces at an early date. No. 3 furnace of the Shenango Furnace Co., Sharpsville, Pa., will be blown out before long and rebuilt. W. P. Snyder & Co., Pittsburgh, make the May average price on basic iron shipped from Valley furnaces \$24.91, against \$19.30 in April, and of Bessemer \$24.40, as compared with \$20.543 the month before.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.96 per gross ton:

Basic	\$25.00
Bessemer	25.00
Gray forge	\$23.50 to 24.50
No. 2 foundry	24.00 to 25.00
No. 3 foundry	23.50 to 24.50
Malleable	24.50

Ferroalloys.—We note one sale of 500 tons of domestic 80 per cent ferromanganese for delivery over the next 60 days at \$67.50 Atlantic seaboard. Except for single carloads wanted for immediate delivery, on which makers are quoting \$70, the market is no longer quotable at above \$67.50. That also remains the price of English makers. Available supplies of spiegeleisen are extremely limited and prices are firm, with the principal commercial producer now quoting \$36 furnace, on 20 per cent and \$35 on 16 to 19 per cent material. Local demands are few. There is no change in the situation in 50 per cent ferrosilicon or in Bessemer ferrosilicon and silveries.

We quote 78 to 82 per cent ferromanganese, \$67.50 c.i.f. Atlantic seaboard for domestic and \$67.50 for English. Average 20 per cent spiegeleisen, \$36 furnace; 16 to 19 per cent, \$35 furnace; 50 per cent ferrosilicon, domestic, \$55 to \$60 furnace, freight allowed. Bessemer ferrosilicon is quoted f.o.b. Jackson and New Straitsville, Ohio, furnaces as follows: 10 per cent, \$41.50; 11 per cent, \$44.80; 12 per cent, \$48.10; 13 per cent, \$52.10; 14 per cent, \$57.10; silvery iron, 6 per cent, \$30; 7 per cent, \$31; 8 per cent, \$32.50; 9 per cent, \$34.50; 10 per cent, \$36.50; 11 per cent, \$39; 12 per cent, \$41.50. The present freight rate from Jackson and New Straitsville, Ohio, into the Pittsburgh district is \$4.06 per gross ton.

Iron and Steel Bars.—While the 1.60c. base, Pittsburgh, has not entirely disappeared as a quotation on merchant steel bars, it is becoming increasingly difficult for buyers to place orders for early and specified delivery at less than 1.70c. This is because all makers are heavily committed, and in taking on additional obligations are obliged to recognize increased costs. A large local fabricating company is reported to be in the market for 6500 tons of reinforcing bars, both plain and deformed. It is not clear whether this tonnage is wanted for a particular project or for stock. Makers of iron bars have made no change in prices, but indicate the possibility of an early advance because of increased costs.

We quote steel bars rolled from billets at 1.60c. to 1.75c.; reinforcing bars, rolled from billets, 1.60c. to 1.75c. base; reinforcing bars, rolled from old rails, 1.50c.; refined iron bars, 2.10c. in carloads, f.o.b. mill, Pittsburgh.

Billets, Sheet Bars and Slabs.—The situation is without material change. With the demand for finished products more orderly than it was a few weeks ago, the pressure for supplies of semifinished material is less urgent. Ingot production in this and nearby districts is averaging close to 75 per cent of capacity, but despite this high rate, very little steel is available for open market sale. On all forms of steel except forging billets, the quotable market is \$35, with forging steel held at \$40. Only a small part of current shipments carries these prices, but on new business it is stated that less cannot be accepted owing to the higher costs incident to the coal strike.

We quote 4 x 4-in. soft Bessemer and open-hearth billets at \$35; 2 x 2-in. billets, \$35; Bessemer and open-hearth sheet bars, \$35; slabs, \$35; forging billets, ordinary carbons, \$40, all f.o.b. Youngstown or Pittsburgh mills.

Structural Material.—There are two sides to the story about prices. Makers insist that 1.60c., Pittsburgh, is minimum, but the word from fabricating companies which have bid against some recent structural projects is that plain material still must be available as low as 1.50c., since the quotations have indicated such a base. Structural shops in this district are fairly well engaged and the mills report considerable pressure for shipments against old orders. Prices are given on page 1627.

Hot-rolled Flats.—A minimum of 2.40c. base, Pittsburgh has been adopted by all of the independent makers on third quarter business, but only on simple specifications can tonnages for early delivery be placed that low. In the narrower widths of light gage, the common quotation is 2.50c and in some instances as high as 2.60c is demanded. The new base represents an advance of approximately \$13 per ton from the low point of earlier in the year, but it is pointed out that the low price meant a loss of \$4 to \$5 a ton. Justification for the advance also is claimed on the ground that billets now are \$35, against \$28 during the first quarter, while fuel is much more costly and adjustments in the wages of tonnage men have added to costs. The Steel Corporation still nominally maintains a base of 2.25c., but is accommodating only regular customers at that figure. The cotton tie season probably will be opened between July 1 and July 10. Makers want to have some definite line on the size of the cotton crop and also on what their competition is going to be from foreign manufacturers.

Cold-rolled Strips.—In keeping with the advance in hot-rolled strips, the price of cold-rolled strips has been increased to 4c. base, Pittsburgh, by all of the independent mills and it is expected that the American Steel & Wire Co., which still is quoting 3.75c. base, will meet the advance. The new price represents an advance over the low point of the year of \$10 per ton, but it is claimed this advance merely covers increases in costs and the losses which the low price of 3.50c. entailed. Prices are given on page 1627.

Fluorspar.—The market is quotable at \$16 per ton, f.o.b. Kentucky and Illinois mines, for 80 to 85 per cent calcium fluoride, with silica not over 5 per cent and \$17.50 for 85 per cent and over calcium fluoride and not over 5 per cent silica. Freight from Kentucky mines to Pittsburgh common rate points is \$5.70 per ton and from Illinois mines \$6. Since the haul from both states is about the same, an effort to have the rate equalized at \$5.70 is believed to be likely of success. Most of the steel companies are well stocked against their immediate requirements and current demands are few and small.

Bolts and Nuts.—Prices are growing firmer and quotations now are minimums rather than maximums. Makers have fairly good order books and find it hard to get bars promptly unless willing to pay premiums. An early advance is predicted. Discounts are given on page 1627.

Cold-Finished Steel Bars and Shafting.—Demand is fairly active and though heaviest from the automotive industry, is expanding from other consuming industries. The established price of 2c. base, Pittsburgh, is closely observed and, in view of the strength of the market in hot-rolled bars, there is some talk of higher prices. Effective May 31, the price of ground shafting was increased \$2 per ton to 2.50c. base, mill, for carload.

Steel Rails.—The Steel Corporation price on light rails still is 1.50c. base, but it is committed against probable production for several weeks and is not accepting new business at that figure. Independents generally are asking 1.60c. base.

We quote 25 to 45-lb. sections, rolled from new steel, 1.50c. to 1.60c. base; rolled from old rails, 1.40c. to 1.50c. base; standard rails, \$40 per gross ton mill for Bessemer and open-hearth sections.

Steel Skelp.—We note a sale of 1000 tons of skelp, including grooved and sheared, for export at 1.60c. Pittsburgh. For domestic consumption, skelp is quotable from 1.60c. to 1.65c. for sheared and 1.70c. to 1.75c. for grooved. Available supplies, especially of narrow grooved, are limited, and it is reported that as high as 2c. has been offered for material of this character.

Wire Rods.—It is not easy to get makers to accept new orders at \$38, because they have not much surplus beyond their actual obligations, and yet there is no real effort to boost the market above that base. The leading interest is understood to be cautious about committing itself very far ahead at to-day's prices.

We quote No. 5 common basic or Bessemer rods \$38, chain rods \$38, screw stock rods \$43; rivet and bolt rods and other rods of that character, \$38. High carbon rods, \$45 to \$48, depending on carbons, per gross ton, f.o.b. Pittsburgh or Youngstown.

Tin Plate.—In line with common expectations, the American Sheet & Tin Plate Co. on June 2, announced the continuance of the present price of \$4.75 per base box, Pittsburgh, on last half contracts with manufacturers and on third quarter contracts with jobbers. This also is the price of independent manufacturers. It is believed there will be closer observance of this price in the last half of the year than there was in the first half because of the increase in costs incident to the fuel situation. The American Sheet & Tin Plate Co. also continues its present base of 3.15c on tin mill black sheets, but only for the month of July. Independent makers of these sheets, expecting an advance later on, are not committing themselves heavily at this price. Tin plate business, as indicated by mill operations, which for the industry as a whole are about 80 per cent of capacity, is good.

Rivets.—Demand holds up in good shape and with bars not readily obtainable and prices moving upward, the prediction is freely made of an advance in rivets. On small rivets, 70, 10 and 10 per cent off list is now quoted only on carload lots to large buyers. Prices and discounts are given on page 1627.

Track Equipment.—Makers of spikes here are very firm in their price ideas and even are talking advances because of the strength of the bar market. The Baltimore & Ohio Railroad inquiry for 5000 kegs still is open. Track bolts still go as low as 3c base in large lots, although makers generally regard that price as too low and would ask more if there was a heavier demand. Tie plates are quotable anywhere from \$1.75 to \$2 per 100 lb., according to the specification and the tonnage involved. Prices are given on page 1627.

Sheets.—The American Sheet & Tin Plate Co. on June 2 announced the continuance for the month of July only of the present bases of 3.15c for black, both sheet and tin mill, 4.15c for galvanized, 2.40c for blue annealed and 4.50c base, No. 22 gage, for automobile sheets. This action was in line with recent expectations, although there is some surprise that the prices were named only for one month instead of for the entire quarter, as has been the practice of the company. The only possible reason for the adoption of the new selling plan by this company is that it does not want to become too heavily committed in the event that the coal situation later forces a curtailment of steel production. The company will not carry over much second quarter business into the third quarter and although it has already entered much July business, it still has some tonnage available for delivery in that month. It was expected that in spite of the failure of the leading interest to advance prices, other independents will follow the increases recently announced by the Inland Steel Co. of \$3 per ton on black and galvanized, and \$2 on blue annealed. Independents also are expected to advance to a base of \$4.75 for automobile sheets. There is still a good demand for practically all finishes of sheets, and although sheet bars are not plentiful, they are in sufficient supply to enable the mills to maintain a high rate of operation. The American Sheet & Tin Plate Co. again has 90 per cent of its capacity scheduled this week, and independent mills are running about 75 per cent. The National Association of Sheet and Tin Plate Manufacturers is meeting to-day in Youngstown, Ohio. Prices are given on page 1627.

Plates.—Although quotations run as high as 1.75c, base, Pittsburgh, the demand hardly is strong enough, nor are the mills so heavily obligated that they would turn down desirable tonnages carrying prices \$2 to \$3 per ton below that figure. New demands are not especially numerous.

We quote sheared plates, ¼ in. and heavier, tank quality, at 1.60c. to 1.75c., f.o.b. Pittsburgh.

Iron and Steel Pipe.—Demand is still steady and strong and the problem of manufacturers is not of getting orders but of keeping buyers from over buying. This condition is easy to understand with new building on an extensive scale and the crude oil market getting stronger, Pennsylvania crude having lately advanced 25c. per barrel. There is talk of a new and higher price card on steel pipe, but no definite action in this

direction yet has been taken. Discounts are given on page 1627.

Boiler Tubes.—Demand shows a pretty constant increase and prices are well maintained, although there are suggestions that some makers still are giving more than the regular discounts on lap welded steel tubes. Discounts are given on page 1627.

Warehouse Business.—Both Carnegie Steel Co. and the Jones & Laughlin Steel Co. have announced the following prices out of warehouse, effective June 6: Bars, 2.20c. base; plates, 2.30c. base; structural beams, 2.30c., and bands 2.85c. base. These prices represent advances of \$2 a ton in bars, plates and structurals and of \$5 a ton in bands.

Coke and Coal.—Prices have stiffened on both coke and coal in the past week, there having been a resumption of buying of coal following the conclusion of the conference in Washington, May 31, while the coke market has been braced by the fact that despite the continued gain in production, supplies are inadequate for the demand. Brokers are pretty active in their efforts to secure such coke as is available in the Connellsville district and this has contributed in no small measure to the advance in view of the fact that there are some consumers who must have supplies. While some furnace coke still is available at \$6.50, the more common asking price of producers is \$7, and brokers are talking \$7.50. Merchant producers of pig iron find that paying more than \$6.50 at oven for coke wipes out any profit there is on iron at current quotations and are inclined to balk at paying more. Makers of ferroalloys, however, are not so hampered. Foundries are not especially busy, but are fairly constant buyers at prices about 50c. per ton above those ruling for furnace grades. One of the blast furnaces which recently resumed is operating on by-product coke costing somewhat above \$7 delivered. Connellsville coal now is selling at \$3.75 for coking grade and \$3.25 to \$3.50 for steam grade. Southern coal ranges from \$3.25 to \$3.50 at Kentucky mines and about 25c. per ton less at southern West Virginia mines.

Old Material.—There is not much occasion to change prices materially from those of a week ago. Demand for the steel works grades is limited from this district. This is especially true of heavy melting steel, because the two leading independent steel companies using this grade have covered their requirements for the next few weeks, and are out of the market. There are some rejections and dealers find it difficult to place them at above \$17. On the other hand, steel offered in the list of the Pennsylvania Railroad, Central Region, is reported to have sold from \$18.25 to \$18.50 to dealers with orders at Canton, Ohio. That price, however, could not be obtained there to-day, and bids of Youngstown district steel makers also are lower, because of the weaker situation here. Heavy breakable cast cannot be sold at above \$18 and machine shop turnings also are slightly lower in price.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows per gross ton:

Heavy melting steel, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh.....	\$17.00 to \$17.50
No. 1 cast, cupola size.....	\$18.50 to 19.00
Re-rolling rails, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.00 to 17.50
Compressed sheet steel.....	15.50 to 16.00
Bundled sheets, sides and ends.....	14.50 to 15.00
Railroad knuckles and couplers.....	18.00 to 18.50
Railroad coil and leaf springs.....	18.00 to 18.50
Low phosphorus standard bloom and billet ends.....	20.00 to 21.00
Low phosphorus plates and other grades.....	19.00 to 20.00
Railroad malleable.....	16.00 to 16.50
Iron car axles.....	26.00 to 27.00
Locomotive axles, steel.....	24.00 to 25.00
Steel car axles.....	17.50 to 18.00
Cast iron wheels.....	17.00 to 17.50
Rolled steel wheels.....	17.50 to 18.00
Machine shop turnings.....	13.25 to 13.75
Sheet bar crop ends.....	18.50 to 19.00
Heavy steel axle turnings.....	15.00 to 15.50
Short shoveling turnings.....	14.50 to 15.00
Heavy breakable cast.....	17.50 to 18.00
Stove plate.....	14.50 to 15.00
Cast iron borings.....	14.50 to 15.00
No. 1 railroad wrought.....	14.50 to 15.00
No. 1 busheling.....	14.00 to 15.00

Chicago

Finished Steel Is Stronger—Strike Situation Causes Anxiety

CHICAGO, June 6.—The iron and steel industry, which has succeeded in maintaining large scale operations in the face of the nation-wide coal strike, may be forced to cope with added burdens in the face of transportation difficulties. Strike agitation, which had its inception with the recent reduction in the wages of railroad maintenance of way employees, was given added impetus to-day when the United States Railroad Labor Board announced a cut of \$60,000,000 a year in the payroll of shop men. The reductions range from 5c. to 9c. an hour and are effective July 1.

Whether this strike threat will have any appreciable effect on the iron and steel market cannot be foreseen at this moment. It is noteworthy, however, that neither producers nor consumers are easily frightened. The coal strike has been in effect two months and a halt and yet industrial activities have continued to gather momentum instead of slackening, as was feared in some quarters. The principal effect of the strike has been to raise fuel prices. These advances latterly were not so rapid but were a source of sufficient concern to cause Secretary Hoover to recommend maximum prices. This step has raised a storm of criticism among consumers, who point out that no sooner had the maximum been announced than prices were raised to those levels. On the other hand, it is pointed out that the longer the strike lasts the smaller the available supply of coal will become, notwithstanding the increasing output of non-union operations, and that while Secretary Hoover's prices may have anticipated the market by a week or two, they will prove a great benefit to the industry if they prevent the sharp advances which might otherwise take place. While producers in this district have succeeded to a surprising degree in fortifying themselves against a fuel shortage, even to the extent of adding to their capacity, they look forward to the future with no little anxiety. In some instances, in fact, it is felt that the time is not so far off when the pinch of the fuel situation will become acute. In this connection it is asserted that the railroads may at any moment exercise their right to confiscate coal in transit, thereby adding to the uncertainties which now beset the user.

That some plants at least still have considerable stocks of fuel is indicated by the blowing in of one of the Bay View merchant furnaces at Milwaukee last week and present preparations for putting in the Zenith furnace at Duluth. Mill operations are unchanged. The Illinois Steel Co. expects to blow out one blast furnace at Joliet this week for relining and to blow in another to take its place. The new wire mill of the Minnesota Steel Co. at Duluth will be ready to commence operations about July 1.

The market for finished steel shows further strength, prices on plates, shapes and bars having advanced another dollar a ton to 1.75c., Chicago. Mills are so heavily booked that they are finding it necessary to allocate their output in an effort to take care of the requirements of all customers in the greatest measure possible. At the same time they are cautious in accepting new business to avoid becoming obligated into fourth quarter.

Pig Iron.—After rather a slack week, sellers find inquiry more active, particularly for third quarter shipments. A local company is inquiring for 1500 tons of malleable for an Indianapolis plant and 500 tons of foundry for a local plant, all for third quarter delivery. A southern Wisconsin melter wants 600 tons of foundry for shipment in that quarter and a large Tri-city implement manufacturer is in the market for 2000 tons of foundry for third and fourth quarter requirements. Interest in freight rates has not ceased with the announcement of the horizontal reductions effective July 1. Both Northern and Southern producers of iron are meeting with the central freight association committee in this city to-day to consider further rate cuts. The proposal of the Southern furnaces, as first submitted

to the Southern Freight Rate Committee, calls for a rate of \$4.82 from Birmingham to Chicago and proportionate rates to other points in this territory.

Quotations on Northern foundry, high phosphorus malleable and basic irons are f.o.b. local furnace and do not include a switching charge averaging 70c. per ton. Other prices are for iron delivered at consumers' yards, or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago.....	\$29.00
Northern coke, No. 1, sil. 2.25 to 2.75..	\$23.50 to 24.00
Northern coke, foundry, No. 2, sil. 1.75 to 2.25.....	23.00
Northern high phos.....	23.00
Southern No. 2.....	24.42 to 25.17
Malleable, not over 2.25 sil.....	23.00
Basic.....	23.00
Low phos. Valley furnace, sil. 1 to 2 per cent copper free.....	35.00
Silvery, sil. 8 per cent.....	\$7.82

Ferroalloys.—The market is without features.

We quote 78 to 82 per cent ferromanganese, \$75.00 to \$80.40, delivered; 50 per cent ferrosilicon, \$55, delivered; spiegeleisen, 18 to 22 per cent, \$46.50 to \$47, delivered.

Bars.—With users pressing them to accept additional orders and with specifications heavy against existing contracts, mills are growing increasingly cautious in booking further business in soft steel bars lest they obligate themselves into fourth quarter. Prices have advanced to a minimum of 1.75c., Chicago, for indefinite delivery and to secure material for prompt shipment, buyers are paying from 1.70c. to 1.75c., Pittsburgh. Sellers are finding that interest in the market is not confined to the jobbers and the larger industries which commenced to buy on a broad scale in March; on the contrary, the smaller shops—forge shops, machine shops and the like—are getting busy and are seeking material. Bar iron is firm and demand is slowly improving, although not so active as the demand for soft steels. Hard steel bars are still obtainable at 1.60c., Chicago.

Mill prices are: Mild steel bars, 1.75c. to 1.85c., Chicago; common bar iron, 1.70c. to 1.75c., Chicago; rail carbon, 1.60c. mill or Chicago.

Jobbers quote 2.38c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 3.40c. for rounds and 3.90c. for flats, squares and hexagons. Jobbers quote hard and medium deformed steel bars at 2.38c. base. Hoops, 3.23c. Bands, 2.98c.

Fluorspar.—A number of users have put out inquiries for from 200 to 300 tons each to cover their requirements for the remainder of the year. Gravel fluorspar is quoted at from \$16 to \$17.50, f.o.b. mines, depending on the guarantees.

Steel Castings.—Except for the miscellaneous castings for the Santa Fe automobile cars, practically all car casting business has been placed, having been rushed through before the advances effective the middle of May. Steel foundries are now on a satisfactory operating basis, one of the leading melters running at 75 per cent of capacity. Another advance in castings is looked for in some quarters, but notwithstanding increases in prices of fuel and other raw materials, the attitude of sellers is conservative with the probability that prices will be advanced not more than 5 per cent if at all.

Bolts and Nuts.—The advanced discounts are firm on all new business and specifications are heavy against second quarter contracts. For mill prices, see finished iron and steel, page 1627.

Jobbers quote structural rivets, 3c.; boiler rivets, 3.10c.; machine bolts up to $\frac{3}{4}$ x 4 in., 50, 10 and 10 per cent off; larger sizes, 50 and 10 off; carriage bolts up to $\frac{3}{4}$ x 6 in., 50 and 5 off; larger sizes, 45 off; hot pressed nuts, squares and hexagon tapped, \$3.25 off; blank nuts, \$3.50 off; coach or lag screws, gimlet points, square heads, 60 per cent off. Quantity extras are unchanged.

Wire Products.—Demand for barbed wire and staples is on the wane, but there is no let-up in nail buying and none is expected during the usually dull summer season in view of widespread building activity. The warehouses of mills are now bare and deliveries against orders are tardy. The new wire mill of the Minnesota Steel Co. at Duluth will get into operation about July 1. For mill prices, see finished iron and steel, f.o.b. Pittsburgh, page 1627.

We quote warehouse prices f.o.b. Chicago: No. 9 and heavier black annealed wire, \$3.10 per 100 lb.; No. 9 and heavier bright basic wire, \$3.25 per 100 lb.; common wire nails, \$3.25 per 100 lb.; cement coated nails, \$2.75 per keg.

Warehouse Prices.—Local jobbers have advanced bolts and nuts, the new discounts being given under the bolt and nut paragraph.

Sheets.—The leading interest has announced a continuance of its prices through the month of July. The local independent which recently announced higher prices is now booked practically through third quarter and is taking new business cautiously.

Mill quotations are 3.15c. to 3.30c. for No. 28 black, 2.40c. to 2.50c. for No. 10 blue annealed and 4.15c. to 4.30c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 38c. per 100 lb.

Jobbers quote blue annealed, 3.53c.; black, 4.30c.; galvanized, 3.30c.

Cast Iron Pipe.—Bookings thus far this year have been the best since 1919. Pipe shops are now comfortably filled with work and are taking on only such additional tonnage as is attractive. Prices have advanced to a minimum of \$37, base Birmingham, for 6-in. and above and most makers are quoting \$37.50. Wellsville, Ohio, takes bids on 1200 tons to-day. The United States Cast Iron Pipe & Foundry Co. will furnish 500 tons for a Moline, Ill., contract job, and 1000 tons for Herrin, Ill., have likewise been sublet by the contractor to the American Cast Iron Pipe Co. Minneapolis has let 1500 tons to the American company. New Prague, Minn., has let 350 tons to a contractor.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$50.10 to \$70.60; 6-in. and above, \$46.10 to \$46.60; class A and gas pipe, \$3 extra.

Rails and Track Supplies.—With railroads pressing hard for delivery of rails, the Gary mill is unable under the present fuel situation to produce more than 10,000 tons a week, which is its maximum output thus far this year. Present bookings are ample to warrant a continuance of this rate of operation throughout the remainder of 1922. Buying of track supplies remains active, one producer having taken an aggregate of 20,000 kegs of spikes and bolts within the past week.

Standard Bessemer and open hearth rails, \$40; light rails rolled from new steel, 1.50c., f.o.b. makers' mills. Standard railroad spikes, 2.12c. to 2.25c., Pittsburgh; track bolts with square nuts, 3.12c. to 3.25c., Pittsburgh; tie plates, steel and iron, 1.85c., f.o.b. mill; angle bars, 2.40c., f.o.b. mill.

Reinforcing Bars.—No diminution in activity in this field is to be noted. Recent awards include:

Fisher Body Corporation, Detroit, plant No. 18, 1500 tons, to Truscon Steel Co.

Studebaker Corporation, South Bend, Ind., plant addition, 1200 tons, divided as follows: 700 tons to Paul J. Kalman Co., 400 tons to Joseph T. Ryerson & Son, 200 tons to Truscon Steel Co.

Sixth Street Garage, Milwaukee, 350 tons, to Corrugated Bar Co.

Clark & Co. building, Peoria, Ill., 300 tons, to Corrugated Bar Co.

Commercial National Bank Building, Fond du Lac, Wis., 100 tons, to Paul J. Kalman Co.

North Avenue Development Association, clubhouse and business building, 200 tons, to Truscon Steel Co.

Pending business includes:

Union Trust Co. building, Cleveland, 600 tons.

Head house, union station, Chicago, 400 tons.

Addition to union station, St. Paul, 1000 tons.

Danville, Ill., high school, 400 tons.

Plates.—Prices of local makers have advanced another dollar a ton to a minimum of 1.75c., Chicago, on orders without definite delivery.

The mill quotation is 1.75c. to 1.85c., Chicago. Jobbers quote 2.48c. for plates out of stock.

Coke.—Foundry coke consumption continues to increase, indicating better melt in the district. The local by-product price remains unchanged at \$10.75, delivered Chicago switching district. A Southern furnace which has a surplus of by-product foundry coke is offering it at \$10.50 delivered Chicago.

Structural Material.—Plain material for indefinite delivery is not now obtainable for less than 1.75c., Chicago. Owing to their heavy commitments, mills are not taking all the business offered, but are making an earnest effort to take care of their regular customers. In view of uncertainties as to delivery of plain material, fabricators are not so active in bidding on pending work as was the case a month or two ago. In order to tide over their present operations, some of them

have found it necessary to buy small tonnages for prompt shipment from Eastern mills or out of warehouse. The Minneapolis Steel & Machinery Co. has been awarded 1500 tons for the superstructure of the Minneapolis Federal Reserve Bank. This is the largest of recent lettings.

The mill quotation on plain material is 1.75c. to 1.85c., Chicago. Jobbers quote 2.48c. for plain material out of warehouse.

Old Material.—With buying light except for moderate purchases of rolling mill grades, prices remain stationary barring a few minor changes. The requirements of users seem to be covered for some time ahead and consumptive buying has been at a minimum during the past fortnight. For the time being, their attitude toward the market is apathetic, but sellers have failed to weaken and are holding to present quotations rather firmly. Railroad offerings include the Pere Marquette, 2500 tons; the Great Northern, 750 tons; the Union Pacific, 2000 tons; the Chicago Great Western, 1000 tons, and the Monon, 700 tons. Owing to a typographical error frogs, switches and guards were quoted last week at \$14.75 to \$15 a gross ton, whereas the figures should have been \$14.50 to \$15.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$18.00 to \$18.50
Cast iron car wheels	18.25 to 18.75
Re-laying rails	22.50 to 27.50
Rolled or forged steel car wheels	16.25 to 16.75
Steel rails, re-rolling	15.00 to 15.50
Steel rails, less than 3 ft.	15.75 to 16.25
Heavy melting steel	14.50 to 15.00
Frogs, switches and guards cut apart	14.50 to 15.00
Shoveling steel	14.00 to 14.50
Drop forge flashings	10.00 to 10.50
Hydraulic compressed sheet	11.50 to 12.00
Axle turnings	12.00 to 12.50
Per Net Ton	
Iron angles and splice bars	16.00 to 16.50
Steel angle bars	13.50 to 14.00
Iron arch bars and transoms	17.25 to 17.75
Iron car axles	21.50 to 22.00
Steel car axles	15.00 to 15.50
No. 1 busheling	11.00 to 11.50
No. 2 busheling	7.00 to 7.50
Cut forge	12.75 to 13.25
Pipes and flues	9.25 to 9.75
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	12.75 to 13.25
Steel knuckles and couplers	14.00 to 14.50
Coil springs	14.25 to 14.75
No. 1 machinery cast	16.00 to 16.50
No. 1 railroad cast	15.25 to 15.75
Low phos. punchings	13.50 to 14.00
Locomotive tires, smooth	12.00 to 12.50
Machine shop turnings	6.75 to 7.25
Cast borings	10.25 to 10.75
Stove plate	13.75 to 14.25
Grate bars	12.50 to 13.00
Brake shoes	12.75 to 13.25
Railroad malleable	14.75 to 15.25
Agricultural malleable	14.75 to 15.25

New York

American Locomotive Co. Buys Pig Iron — Foundry Coke Scarce

NEW YORK, June 6.

Pig Iron.—The principal purchase of the past week was 3600 tons of three grades of foundry iron for June, July and August delivery to the Dunkirk and Schenectady plants of the American Locomotive Co. Buffalo iron was purchased, but the price was not announced. It was probably on the basis of \$22 for No. 2 plain. Although the Buffalo market is advancing and one company is now quoting \$25, the usual quotations range from \$22.50 to \$23. Buffalo furnace. The Central Foundry Co. has purchased 2000 tons for delivery at several of its plants and the Robins Conveying Belt Co. 500 tons. The market is one of quiet strength. Eastern Pennsylvania iron is quoted on a basis of \$24.50 to \$25.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$5.46 from Buffalo and \$6.16 from Virginia:

East. Pa. No. 1 fdy., sil.	2.75 to 3.25	\$28.52 to \$29.02
East. Pa. No. 2X fdy., sil.	2.25 to 2.75	27.52 to 28.02
East. Pa. No. 2 fdy., sil.	1.75 to 2.25	27.02 to 27.52
Buffalo, sil.	1.75 to 2.25	27.96 to 28.46
No. 2 Virginia, sil.	1.75 to 2.25	29.16

Ferroalloys.—A substantially improved demand for ferromanganese has developed within the past week, resulting in several good-sized sales. The Midvale Steel

& Ordnance Co. bought 2000 tons or more of British ferromanganese at a price reported to be a shade under \$67.50, seaboard. A Youngstown steel company is reported to have bought about 1000 tons of British alloy. Domestic producers have sold a few thousand tons and in most instances have met the British price of \$67.50, though their nominal quotation has been \$70. Spiegel-eisen, 20 per cent, is obtainable at \$36, furnace, but business is limited in volume.

Ferroalloys

Ferromanganese, domestic, seaboard, per ton.	\$67.50
Ferromanganese, British, seaboard, per ton.	\$67.50
Spiegeleisen, 20 per cent.	\$36.00
Ferrosilicon, 50 per cent, delivered, per ton.	\$57.00 to \$60.00
Ferrotungsten, per lb. of contained metal.	40c. to 50c.
Ferrochromium, 6 to 8 per cent carbon, 60 to 70 per cent Cr., per lb. Cr., delivered.	12c. to 14c.
Ferrovanadium, per lb. of contained vanadium.	\$3.00 to \$3.50
Ferrocobalt, 15 to 18 per cent, 1 ton to carloads, per ton.	\$200.00

Ores

Manganese ore, foreign, per unit, seaboard.	25c. to 26c.
Tungsten ore, per unit, in 60 per cent concentrates, nominal.	\$3.00 up
Chrome ore, basis 48 per cent Cr ₂ O ₃ , crude, per unit, Atlantic seaboard.	40c. to 45c.
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₂ , New York.	40c. to 45c.

Cast-Iron Pipe.—Extreme activity continues the rule among buyers of cast-iron pipe, although at present this purchasing is largely confined in this district to private purchases. On July 9 a municipal contract involving about 500 tons of pipe will be opened by the Department of Water Supply, Gas and Electricity in New York. The greatest activity among cast-iron pipe foundries is reported in the Eastern district, but a notable increase of buying is reported from the West and South. One interest in this district states that besides being on a schedule of extended deliveries, in May it manufactured and delivered more pipe than for any one month in the past 12 years. The only obstacle to complete 100 per cent operation among cast-iron pipe makers is the difficulty in obtaining the right kind of skilled labor. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$50.80; 4-in. and 5-in., \$55.50; 3-in., \$65.80, with \$4 additional for Class A and gas pipe.

Warehouse Business.—Effective June 6, both the leading warehouse interest and the leading independent in this district, as well as a majority of the smaller warehouses, revised prices upward on bars, plates, structural material, hoops, bands and blue annealed sheets. The new quotations represent an advance of 10c. per 100 lb. on bars, plates and structural material, 15c. per 100 lb. on blue annealed sheets, and 25c. per 100 lb. on hoops and bands. The new bar quotation is 2.58c. per lb. base, hoops 3.63c. per lb., bands 3.23c. per lb., and blue annealed sheets, No. 10 gage, 3.63c. per lb. The black and galvanized sheet situation is unchanged. While most warehouses have endeavored to hold prices up to the new schedule of 4.35c. per lb. and 5.35c. per lb. for black and galvanized sheets, the action of a number of sellers in this district in giving concessions on lots of 25 bundles or more has held the minimum price for large lots down to a basis of 4.20c. and 5.20c. per lb., on black and galvanized. The coal strike, which was expected to have the effect of increasing warehouse sales, has, thus far, shown no appreciable effect. Business is good, each week showing a slight increase over the previous week. Brass and copper warehouses report activity and another increase in prices of both brass and copper products of ¼c. to ½c. per lb. Business with manufacturers of radio telephone equipment has evidently declined for the summer and no longer leads in the transactions of dealers. We quote prices on page 1646.

High Speed Steel.—The market is unchanged at 75c. to 80c. per lb. for 18 per cent tungsten high speed steel with special brands of some companies selling up to 95c. per lb.

Finished Iron and Steel.—A steady appearance of inquiries, broad in scope, in that all forms of finished steel are covered, and a correspondingly good rate of buying lends strength to repeated statements that the business of the immediate future will put the

summer above the average in activity. More railroad car business has appeared. No abatement in the automobile trade is evident, but rather the opposite. A marked drop in new building proposals is noted, but a considerable quantity of reinforced concrete bars are under negotiation. Practically nothing is doing in locomotives. Mills which were carefully booking business owing to the constriction imposed by the coal strike are now more actively seeking business and competition is sufficiently keen to prevent the market's rising to a 1.70c. Pittsburgh basis for the heavy tonnage products. More is heard of a likely scarcity of mill help in the face of any considerable expansion in operations and this fact is counteracting the active quest by mills of attractive offerings.

We quote for mill shipments, New York, as follows: Soft steel bars, plates and structural shapes, 1.98c. to 2.08c. per lb. iron, 1.98c. On export shipments the freight rate from Pittsburgh to New York is 28.5c. per 100 lb. and the domestic rate is 38c.

Coke.—There is a scarcity of foundry coke and one firm which has an inquiry for 3000 tons has been unable to obtain it. Little difficulty is experienced, however, in picking up small quantities at from \$7 to \$7.50, Connelville oven. By-product coke continues to be quoted at \$9, seaboard. News from the strike regions, particularly the Klondike region, is not reassuring and the general expectation is that there will not be much increase in production in the near future.

Old Material.—The market is inactive and prices are weak. About the best offer at present on No. 1 heavy melting steel is \$9.50 to \$10 per ton. Based upon Bethlehem's latest price for railroad steel, \$15, as compared to the previous offer of \$15.50 per ton, the price on this material is not higher than \$11.50 to \$12. The market is extremely sensitive, but the dearth of transactions in many items makes it difficult to establish values. In the meantime, although they realize that all quotations are weak, dealers consider last week's prices as prevailing.

Buying prices per gross ton, New York, follow:

Heavy melting steel, yard.	\$9.50 to \$10.00
Steel rails, short lengths, or equivalent	11.50 to 12.00
Revolving rails	11.50 to 12.00
Relaying rails, nominal.	27.00 to 28.00
Steel car axles.	11.50 to 12.00
Iron car axles.	19.00 to 20.00
No. 1 railroad wrought.	11.00 to 11.50
Wrought iron track.	11.50 to 12.00
Forge fire	7.50 to 8.00
No. 1 yard wrought, long.	10.50 to 11.00
Cast borings (clean).	9.50 to 10.00
Machine-shop turnings	9.50 to 10.00
Mixed borings and turnings.	9.50 to 10.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	9.50 to 10.00
Stove plate	9.75 to 10.25
Locomotive grate bars.	10.75 to 11.25
Malleable cast (railroad)	10.00 to 10.50
Cast-iron car wheels.	12.00 to 12.50

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, follow:

No. 1 machinery cast.	\$18.00 to \$20.00
No. 1 heavy cast (columns, building materials, etc.), cupola size.	16.50 to 17.00
No. 1 heavy cast, not cupola size.	13.50 to 14.00
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

Philadelphia

Demand for Steel and Pig Iron Slackens—Business Waiting

PHILADELPHIA, June 6.

Demand for steel and pig iron is neither so urgent nor for such a large volume as was the case last month. Several reasons are advanced to account for this slightly easier condition, one being that consumers' requirements for second quarter are well covered and another is that many are delaying as long as possible to take advantage of the lower freight rates in effect July 1. A considerable volume of third quarter business is waiting, both in steel and pig iron. Makers of plates, shapes and bars have steadfastly declined to make third quarter contracts, but the books of sheet, tin plate and strip mills are open for that period. Far more business than is generally realized has been put on the books of steel companies in the past two or three months, and this fact alone is probably sufficient explanation for the present lull in buying. The mills are in comfortable position and few of them can make deliveries short of

four to eight weeks, except on plates, which can be had in a week or two, while the Steel Corporation is booked even further ahead and has quoted deliveries of from three to four months on plates, shapes and bars. Prices of steel are higher and plates, shapes and bars are more often being sold at 1.70c., Pittsburgh. Pig iron prices tend higher despite the present quietness in the market.

Pig Iron.—Though demand for pig iron has dropped off in the past week, prices continue firm, with a tendency toward higher levels. In this market, with its varying freight rates from furnaces to consumers' plants, it is usually a sign of strength when furnaces decline to equalize freight rates, and this is the situation to-day. Two merchant interests are entirely out of the market except that one is selling such iron as it has in stock, and other furnaces that are willing to sell are asking higher prices, varying from \$24.50 to \$25, furnace, for No. 2 plain and from \$25 to \$26 for No. 2X. At least two furnaces will not sell No. 1X below \$28, furnace, but this grade is obtainable from other sources at lower figures. Demand for iron for third quarter is expected to develop soon, but during the past week there has been little indication that consumers are ready to contract at to-day's high prices. The Norfolk & Western Railroad has bought about 2000 tons of Ohio iron through a local iron merchant. The Robeson furnace will go in blast on June 19 on copper bearing low phosphorus iron. The Standish furnace, which makes copper free low phosphorus iron, has been relined and is ready to be blown in, but no date has been set because of the coke situation. Stocks of low phosphorus iron have been practically sold out. Copper bearing iron is quoted at \$30 and last sales of copper free iron were made at the same figure, but on future inquiries a local seller would quote \$32, furnace.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia, and include freight rates varying from 84 cents to \$1.54 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$25.76 to \$26.32
East. Pa. No. 2X, 2.25 to 2.75 sil.	26.26 to 26.82
East. Pa. No. 1X	26.76 to 26.84
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.74 to 28.24
Virginia No. 2X, 2.25 to 2.75 sil.	28.24 to 28.74
Basic delivery eastern Pa.	25.00 to 25.50
Gray forge	24.00 to 25.00
Malleable	25.50
Standard low phos. (f.o.b. furnace)	30.00
Copper bearing low phos. (f.o.b. furnace)	30.00

Ferroalloys.—Several fairly important sales of ferromanganese have been made within the past week. The Midvale Steel & Ordnance Co. bought about 2000 tons of British alloy, and a Youngstown steel company bought about 1000 tons. A domestic producer sold about 2000 tons during the week, meeting the British price of \$67.50, seaboard, though the nominal domestic quotation has been \$70. Though spiegeleisen is obtainable at \$36, furnace, as high as \$40 has been paid for a single carload.

Ore.—The Alan Wood, Iron & Steel Co. has received two cargoes of Swedish iron ore, totaling 13,000 tons, and has bought a sample cargo of African ore, which will arrive soon. The Bethlehem Steel Co. has bought 20,000 tons of Caucasian manganese ore from the Iron & Ore Corporation of New York at prices reported to range from 24½c. to 25½c. per unit.

Semi-Finished Steel.—Demand for billets continues fairly active, one current inquiry calling for 2800 tons of special forging billets for the American Locomotive Co. Open-hearth rerolling billets are firm at \$35, Pittsburgh, and forging billets are quoted at \$39 and \$40, Pittsburgh.

Plates.—A fair demand for plates continues and one mill in this district has been able to make substantial sales at 1.70c., but plates are obtainable from other mills at 1.60c., Pittsburgh, though the latter price appears to be the minimum for prompt delivery. The Carnegie Steel Co., which still quotes 1.50c. on desirable tonnages, is unable to promise delivery better than 10 or 12 weeks. We quote sheared and universal plates at 1.60c. to 1.70c., Pittsburgh.

Structural Material.—Structural steel work involving several thousand tons has been let or is about to be let in this market. Details of these jobs are pub-

lished in another column. Some steel companies are having no difficulty in getting 1.70c., Pittsburgh, on small lots for early delivery, and 1.60c. is not now so freely quoted. We quote plain material at 1.60c. to 1.70c., Pittsburgh.

Bars.—For prompt delivery, mills are able to get 1.70c. and 1.75c., Pittsburgh, for steel bars, for which the demand continues fairly active, though not in as large volume as during May. About 2500 tons of reinforcing bars are required for the anchorage piers for the Delaware River bridge. Bar iron is still quoted by Eastern makers at 1.60c. for carloads and at 1.70c. for less than carloads, Pittsburgh.

Sheets.—The action of the American Sheet & Tin Plate Co. in announcing a continuance of its present schedule of sheet prices up to August 1 has left some of the independents in a quandary as to what action they will take on third quarter prices. At present the disposition seems to be to quote to-day's market level, which is \$3 to \$5 a ton above the prices of the leading interest. Independent mills which can make fairly good deliveries are having no difficulty in getting from 2.40c. to 2.65c. for blue annealed, from 3.30c. to 3.50c. for black and from 3.30c. to 3.40c. for galvanized, base, Pittsburgh.

Hot and Cold-Rolled Strip Steel.—Independent makers of hot-rolled strips, hoops and bands have advanced their price to 2.40c., Pittsburgh, though the leading interest continues to quote 2.25c. Contracts for cold-rolled strips for third quarter have been made at 4c. per lb., base, Pittsburgh.

Warehouse Business.—Demand for steel out of stock continues very active. Prices are unchanged and for Philadelphia delivery are as follows:

Soft steel bars and small shapes, 2.46c.; iron bars (except bands), 2.46c.; round edge iron, 2.55c.; round edge steel, iron finish, 1½ x ¼ in., 2.55c.; round edge steel planished, 3.30c.; tank steel plates, ¼-in. and heavier, 2.56c.; tank steel plates, 3/16-in., 2.72c.; blue annealed steel sheets, No. 10 gage, 3.40c.; black sheets, No. 28 gage, 4.25c.; galvanized sheets No. 28 gage, 5.25c.; square twisted and deformed steel bars, 2.50c.; structural shapes, 2.56c.; diamond pattern plates ¼-in., 4.35c.; 3/16-in., 4.50c.; spring steel, 3.50c.; round cold-rolled steel, 3.20c.; squares and hexagons, cold-rolled steel, 3.70c.; steel hoops, No. 13 gage and lighter, 3.21c.; steel bands, No. 12 gage to 3/16-in., inclusive, 2.96c.; iron bands, 3.90c.; rails, 2.36c.; tool steel, 8c.; Norway iron, 5.50c.; toe calk steel, 4.50c.; tire steel, 2.65c.; planished tire steel, 3.40c.

Coke.—Little furnace coke is available, but occasional small lots have been sold and the price has reached about \$7. One furnace paid \$7.10, Connellsville, for a few carloads. Foundry coke is not obtainable below \$6.75, Connellsville, while \$7.35 was paid for one lot.

Old Material.—A New York scrap broker is now offering only \$15 for No. 1 heavy melting steel for delivery at the Bethlehem and Steelton plants of Bethlehem Steel Co. and this has caused a slight weakness in the scrap market. Demand from other sources is not large. With the exception of steel scrap, the tendency is toward firmness in prices and there have been some further advances. No. 1 cast is in demand and has sold at \$19, delivered. We quote for delivery at consumers' works in this district as follows:

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	\$15.00 to \$15.50
Scrap rails	15.00 to 15.50
Steel rails, rerolling	17.00 to 17.50
No. 1 low phos., heavy 0.04 and under	21.00 to 22.00
Cast iron car wheels	17.00 to 18.00
No. 1 railroad wrought	17.00 to 17.50
No. 1 yard wrought	15.00 to 15.50
No. 1 forge fire	13.00 to 13.50
Bundled sheets (for steel works)	13.50 to 14.00
No. 1 busheling	15.00 to 15.50
No. 2 busheling	12.00 to 13.00
Turnings (short shovelling grade for blast furnace use)	13.50 to 14.00
Mixed borings and turnings (for blast furnace use)	13.50 to 14.00
Machine-shop turnings (for steel works use)	13.50 to 14.00
Machine-shop turnings (for rolling mill use)	13.50 to 14.00
Heavy axle turnings (for equivalent)	13.50 to 14.00
Cast borings (for steel works and rolling mills)	12.50 to 14.00
Cast borings (for chemical plants)	16.50 to 17.50
No. 1 cast	19.00 to 19.50
Railroad grate bars	14.50 to 15.00
Stove plate (for steel plant use)	15.00 to 15.50
Railroad millable	15.00 to 15.50
Wrought iron and soft steel pipes and tubes (new specifications)	14.50 to 15.00
Shafting	20.00 to 20.50

Cincinnati

Fair Sized Rates of Pig Iron—Coke Market Is Active

CINCINNATI, June 6.

Pig Iron.—While the market does not show pronounced activity, several fair-sized tonnages were booked during the past week, and with the number of carload orders the aggregate tonnage amounted to approximately 5000. It is generally conceded that melters are well covered for their June needs, but a buying movement is expected to develop shortly for third quarter requirements. Prices are exceedingly firm, and a tonnage of resale iron that has been hanging over the market for some time has been liquidated. With the difficulty experienced by furnaces in securing coke preventing actual increase in production, the price situation is very strong. While the market generally can be quoted at last week's figures, furnaces are inclined to ask 50c. to \$1 more for third quarter iron, and some sales have been made at the advanced prices. A railroad company bought 1600 tons of foundry and malleable grades, the orders going to Ironton district furnaces on a \$22.50 and \$23 base respectively. A local melter took 500 tons of foundry, paying \$23.50, Ironton. At Louisville a melter bought 500 tons of Southern foundry at \$18.50, Birmingham, while another Louisville melter took 200 tons of resale material on an \$18, Birmingham, basis. An Ohio malleable shop bought 1000 tons of malleable, the order going to a Cleveland district stack. One sale of 900 and one of 400 tons of silvery are reported to Michigan melters at the full schedule. The only inquiry of consequence comes from an Indiana melter who wants 1500 tons of malleable for last half. Freight rate reductions have had little effect on shipments, melters generally being in a hurry for their iron.

Based on freight rates of \$4.50 from Birmingham and \$2.52 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base).....	\$23.00
Southern coke, sil. 2.25 to 2.75 (No. 2 soft)....	23.50
Ohio silvery, 8 per cent.....	35.02
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2)...	25.02
Basic Northern	25.02
Malleable	25.52

Finished Material.—With the Decoration Day holiday intervening, the past week was somewhat lighter than previous ones in so far as orders for finished material were concerned. The tonnage for the month of May, however, was the heaviest booked by many mills since the depression set in. Buying is mostly being done for immediate delivery, but requirements of manufacturers and jobbers are becoming larger each week, so that the aggregate tonnage is assuming very healthy proportions. There were a number of orders of 100 to 300 tons booked during the latter part of the week for shapes and plates. The going prices range from 1.60c. to 1.75c., the lower price being quoted only on desirable specifications. Chicago mills are quoting bars, shapes and plates at 1.70c. to 1.80c. mill, and the range in the Alabama district is from 1.87½c. to 2c. The demand for wire products is keeping up surprisingly well, and the price situation is very firm. Independent mills continue to quote an average of \$2 per ton above the Steel Corporation's subsidiary, but it is expected that an advance will shortly be announced by the leading interest which will bring prices up to the same level. The demand for reinforcing bars is heavy, most of the inquiries being for carloads up to 100 tons. However, there are a few structural awards pending which will take considerable tonnages. A Cleveland mill booked an order for 270 tons for the new Atlas Bank building at Cincinnati. An addition to the department store of the Rollman & Sons Co., Cincinnati, on which bids have been taken, will require approximately 750 tons, and an addition to the plant of the U. S. Playing Card Co., Cincinnati, the general contract for which has been let to the Fisher-Devore Construction Co., will take over 300 tons. While there have been no awards of consequence in the structural field, the number of new projects on which bids have been taken indicates that in this district the season will be a very active one.

Sheets.—The demand for sheets continues heavy. Automobile body sheets in particular are insistently

sought, and no trouble is experienced in getting \$4.75 per 100 lb. for any tonnage offering. The American Sheet & Tin Plate Co. has opened its books for July only, naming the present prices to be in effect for this delivery. Orders, however, are being accepted for August and September subject to prices to be announced later. Practically all of the independent mills are following the lead of the Corporation's subsidiary. It is expected that new prices on sheets will show an advance of approximately \$5 per ton.

Warehouse Business.—Orders for immediate shipment are showing a steady improvement and jobbers are satisfied with the volume of business being done. Wire products are in fair demand, nails in particular moving well. The demand for galvanized sheets is assuming heavy proportions, and with a continuance of the building activity, a big season is looked for. There have been no price changes announced, but it is expected that a general advance will be made within the next week or two, as jobbers are placing orders with mills at from \$3 to \$5 a ton higher than was the case two months ago.

Jobbers quote: Iron and steel bars, 2.75c. base; hoops and bands, 3.35c. base; shapes and plates, 2.85c. base; reinforcing bars, 2.82½c. base; cold-rolled rounds, 3.35c. base; flats, squares and hexagons, 3.85c. base; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.50c.; No. 28 galvanized sheets, 5.50c.; No. 9 annealed wire, \$2.70 per 100 lb.; common wire nails, \$2.85 per keg, base.

Fluorspar.—There is fair activity in fluorspar, most of the sales being made to the Pittsburgh district. The market is firm at \$16 to \$17.50 for guaranteed material.

Coke.—The coke market is active and a number of sales ranging from 500 to 1000 tons for early shipment were booked. We note a sale of 2500 tons of Connellsville foundry coke, for last half shipment, at \$5.25. Most operators, however, are averse to quoting for this period. Some West Virginia coke producers are putting out part of their capacity and will ship coal. No price changes are reported. An offer for 6000 tons of furnace coke has been turned down by a district by-product producer.

Old Material.—There is some evidence of improvement in the scrap market, but most of the material is moving away from the Cincinnati district. Prices are higher on some grades, rerolling steel rails being up \$1.50, and heavy steel, car wheels, railroad wrought borings and turnings 50c.

We quote dealers' buying prices, f.o.b. cars:

	Per Gross Ton	
Bundled sheets	\$8.00 to \$8.50	
Iron rails	13.50 to 14.00	
Relaying rails, 50 lb. and up.....	26.50 to 27.00	
Rerolling steel rails.....	13.50 to 14.00	
Heavy melting steel.....	13.00 to 13.50	
Steel rails for melting.....	13.00 to 13.50	
Car wheels	14.50 to 15.00	
	Per Net Ton	
No. 1 railroad wrought.....	11.50 to 12.00	
Cast borings	8.50 to 9.00	
Steel turnings	7.50 to 8.00	
Railroad cast	14.00 to 14.50	
No. 1 machinery.....	16.00 to 16.50	
Burnt scrap	9.50 to 10.00	
Iron axles	18.00 to 18.50	
Locomotive tires (smooth inside)....	11.00 to 11.50	
Pipes and flues.....	6.50 to 7.00	

Birmingham

BIRMINGHAM, ALA., June 6

Pig Iron.—Only one maker was quoting under \$18.50 in the Birmingham iron market June 1. That one is the leading interest, which is not soliciting business, but is understood to have been making regular bookings for the last half. Sloss-Sheffield Steel & Iron Co. by recent resumption at North Birmingham, city and Florence stacks, has regained dominant position in the Southern iron market with a production of 40,000 to 50,000 tons a month. With two North Alabama furnaces active, it has approximately 18,000 tons a month to offer Western territory by reduced rail and water freight rates. Transportation has become regular and uninterrupted. The aggregate of business placed last week was small, the lull being a pronounced one. Small lots were placed at \$18.50 and \$19. The lull is attributed partly to the recent heavy buying and partly to waiting on the lower freight rates of July 1 as well as good stocks of large buyers. It is also believed that some Western consumers are not melting

all the iron desired on account of the coke situation. Makers regard the market as thoroughly firm and expect a good buying movement for fourth quarter delivery beginning shortly before July 1. The leading interest has three blast furnaces nearing completion of repairs and rebuilding, but whether it meditates considerable manufacture of foundry iron is not known. Its unprecedented steel records point to necessity of unusual amount of basic iron there, besides which it has the order of the United States Cast Iron Pipe & Foundry Co. for 50,000 tons of foundry iron on which to start.

We quote per gross ton f.o.b. Birmingham district furnaces as follows:

Foundry, silicon 1.75 to 2.25.....	\$18.00 to \$18.50
Basic	18.00 to 18.50
Charcoal, warm blast.....	30.00 to 32.00

Plant Operations.—All finishing mills are at or near capacity. The Tennessee company remains at 100 per cent of ingot production. Following are among seven production records broken last month: Ingot mill, 99,005 tons compared with prior high of 96,318 tons in March; Ensley No. 4 furnace, 16,034 tons compared with 15,654 in April; benzol plant, 444,044 gallons compared with 387,926 in April, 1916; Edgewater coal mines, 96,970 tons compared with 91,221 tons in March, 1917. The Connors Steel Co. is operating both hoop and bands mills. The Gulf States Steel Co. has resumed at a third open-hearth furnace and is near capacity. The American Steel & Wire Co. is doing about as well. Steel products are moving more regularly to South America and the Orient with Japan taking 10,000 tons more of rails.

Coal and Coke.—Coal production has risen from 275,000 to 325,000 tons a week owing principally to takings by Missouri Pacific, Mobile & Ohio and other railroads. Prices average under the Hoover fair price scale for Alabama, which is \$2.20 to \$2.60. Coke is strong at \$5.50. Barrett pitch coke sells at \$9 and the make is absorbed. Woodward Iron Co. has advanced ore and coal mine wages approximately 10 per cent effective June 1. The Tennessee company took the same action effective May 15.

Cast Iron Pipe.—The pressure pipe market witnessed a rush of business to escape the rise to \$37, effective June 1. One maker turned down an order for 1000 tons. The United States Cast Iron Pipe & Foundry Co. has received the contract for 4000 tons for Government barracks at Honolulu, 2200 tons for Paris, Tex., and numerous smaller orders from the Southwest. The market was never stronger. Sanitary pipe is firm at the new base of \$55. Practically all pipe plants are near capacity. Unusually heavy movements from Mobile to the Pacific Coast are taking place.

Old Material.—The scrap market is much stronger and cast scrap is moving in exceptionally large quantities. Recent advances are held firmly.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Steel rails	\$13.00 to \$14.00
No. 1 steel.....	12.00 to 13.00
No. 1 cast.....	14.00 to 15.00
Car wheels	13.00 to 14.00
Tramcar wheels	12.00 to 13.00
Stove plate	12.00 to 13.00
Cast iron borings.....	6.00 to 7.00
Machine shop turnings.....	4.00 to 5.00

Buffalo

BUFFALO, June 6.

Pig Iron.—Inquiry with the various selling factors in Buffalo is not uniform and depends generally on the position of each particular interest with reference to being able to accept business in the last several weeks. With several furnaces there has been a decided falling off in inquiry, probably due to the known fact that they are unable to take business at any consideration. There is little probability that furnace operation will be increased within the near future; the fuel situation is too serious to even consider starting any additional stacks. The tendency to refrain from quoting ahead continues, as it is increasingly apparent that costs will mount as the fuel uneasiness continues. One furnace has increased the wages of common labor 10 per cent. Sales have dropped below the average weekly tonnage. The

\$23 base price is not as firm as the week before and one seller has quoted \$22 base in several instances. One furnace interest was virtually withdrawn from the market by naming a base price of \$25 for foundry grades.

We quote f.o.b. per gross ton Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil.....	\$23.00 to \$24.00
No. 2X foundry, 2.25 to 2.75 sil.....	22.50 to 23.50
No. 2 plain, 1.75 to 2.25 sil.....	22.00 to 23.00
Basic	23.50
Malleable	23.00
Lake Superior charcoal.....	29.14

Finished Iron and Steel.—The demand for all products shows no abatement, but none of the agencies is in any better position to accept business. Costs are mounting daily. Interests still quoting 1.60c. are reported to have imposed new conditions in taking new business; that not less than five tons of a size will be rolled and that no shipments of less than carload lots be made. Local independents are quoting 1.70c. where they are able to consider business. Bolt bookings for third quarter delivery have been good. The local branch of a large independent is daily expecting some instruction as to third quarter commitment and in the meantime is declining to accept any bookings. Demand from automobile makers for sheets is brisk.

Warehouse Business.—Plates and structural shapes show the greatest demand, but the good increase in merchant business a month ago is maintained. There is no likelihood of an immediate advance in prices, though rolling schedules in the mills are so uncertain that warehousemen generally feel they could advance present price schedules without affecting the general run of business.

We quote warehouse prices, f.o.b. Buffalo, as follows: Structural shapes, 2.65c.; plates, 2.65c.; soft steel bars, 2.55c.; hoops, 3.30c.; bands, 3.15c.; blue annealed sheets, No. 10, 3.55c.; galvanized steel sheets, No. 28, 5.40c.; black sheets, No. 28, 4.40c.; cold-rolled strip steel, 6.05c.; cold-rolled round shafting, 3.35c.

Old Material.—Railroad lists closed last week at prices slightly higher than the previous month. Dealers are selling whatever material they have on hand; there is no disposition to hold stocks for speculative purposes. Demand is steady and for all materials.

We quote dealers' asking prices per gross ton f.o.b. Buffalo as follows:

Heavy melting steel.....	\$16.75 to \$17.00
Low phos., 0.04 and under.....	18.00 to 19.00
No. 1 railroad wrought.....	16.00 to 16.50
Car wheels	17.00 to 18.00
Machine shop turnings.....	10.50 to 11.00
Cast iron borings.....	12.50 to 13.00
Heavy axle turnings.....	14.00 to 14.50
Grate bars	14.00 to 14.50
No. 1 busheling.....	15.00 to 15.50
Stove plate	15.00 to 15.50
Bundled sheet stampings.....	11.50 to 12.00
No. 1 machinery cast.....	18.00 to 18.50
Hydraulic compressed	15.00 to 15.50
Railroad malleable	17.00 to 17.50

St. Louis

ST. LOUIS, June 6.

Pig Iron.—This has not been a particularly active week in the pig iron market. Fewer orders and inquiries were reported, a situation brought about by melters buying in sufficient quantities to take care of their requirements for business on hand and by a desire to await a reduction in freight rates before making purchases for the future. That melters are needing the iron they have purchased is shown by an increase in shipping specifications against orders. There is some buying going on quietly and without inquiries being made among local foundries. The principal sale of the week was made by a local maker of 2000 tons of basic for immediate delivery to an East Side melter. A Terre Haute melter bought 500 tons of foundry iron. The principal inquiry came from a southern Illinois melter and was for 600 tons of foundry iron. The markets for Northern iron and Southern iron are firm at \$23 Chicago and \$18.50 to \$19 Birmingham, respectively.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.80 freight from Chicago and \$5.74 from Birmingham:

Northern foundry, sil. 1.75 to 2.25...	\$25.80
Northern malleable, sil. 1.75 to 2.25..	25.80
Basic	25.80
Southern foundry, all rail, sil. 1.75 to 2.25	\$24.24 to 24.74
Southern foundry, water and rail, sil. 1.75 to 2.25, f.o.b. St. Louis.....	22.74

Finished Iron and Steel.—Railroad inquiries the last week were confined for the most part to plates and bars for repair work, no inquiry being for more than a carload. The Cotton Belt had out an inquiry for 320 wheels, but purchased only 50, the order going to Midvale Steel & Ordnance Co. The Missouri Pacific bought 2500 kegs of track bolts, and expects to place an order early in the week for 800,000 tie plates. There is hardly any buying of sheets, jobbers and others having bought heavily prior to the recent advance.

For stock out of warehouse we quote: Soft steel bars, 2.47½c. per lb.; iron bars, 2.47½c.; structural shapes, 2.57½c.; tank plates, 2.57½c.; No. 10 blue annealed sheets, 3.62½c.; No. 28 black sheets, cold rolled, one pass, 4.30c.; cold drawn rounds, shafting and screw stock, 3.40c.; structural rivets, \$3.09½ per 100 lb.; boiler rivets, \$3.19½; tank rivets, 7/16 in. and smaller, 60 and 10 per cent off list; machine bolts, large, 60 per cent; small, 60 and 10 per cent; carriage bolts, large, 55-5 per cent; small, 60 and 10 per cent; lag screws, 60-5 per cent; hot pressed nuts, square or hexagon blank, \$3.50; and tapped, \$3.25 off list.

Coke.—The demand from industries is increasing, as these lines are beginning to feel the shortage of coal and are looking to coke as a substitute. Buyers of domestic coke are disposed to hold off their purchases until after the freight rate reduction. Connellsville producers of coke have been affected by the coal strike and there is a shortage of coke. The price of the best grades of Connellsville is \$7.

Old Material.—There is no change in the markets for old material, as the summer lull seems to approach. Consumers are not buying to any extent, as they had previously bought heavily to take care of business they had booked. Rails, both melting and rerolling, are more plentiful.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Old iron rails.....	\$16.75 to \$17.25
Steel rails, rerolling.....	14.25 to 14.75
Steel rails, less than 3 ft.....	15.00 to 15.50
Relaying rails, standard section.....	25.00 to 28.00
Cast iron car wheels.....	17.50 to 18.00
No. 1 railroad heavy melting steel.....	13.25 to 13.75
No. 1 heavy shoveling steel.....	12.50 to 13.00
Frogs, switches and guards, cut apart.....	14.00 to 14.50
Per Net Ton	
Heavy axle and tire turnings.....	9.50 to 10.00
Steel angle bars.....	12.75 to 13.25
Iron car axles.....	23.00 to 23.50
Steel car axles.....	16.50 to 17.00
Wrought iron bars and transoms.....	18.00 to 18.50
No. 1 railroad wrought.....	12.50 to 13.00
No. 2 railroad wrought.....	12.00 to 12.50
Railroad springs.....	15.00 to 15.50
Steel couplers and knuckles.....	15.00 to 15.50
Cast iron borings.....	8.50 to 9.00
No. 1 busheling.....	11.00 to 11.50
No. 1 railroad cast.....	15.50 to 16.00
Stove plate and light cast.....	12.75 to 13.25
Railroad malleable.....	12.75 to 13.25
Pipe and flues.....	8.00 to 8.50
Machine shop turnings.....	6.50 to 7.00

Cleveland

Fixing of Ore Prices Delayed—Vessel Carrying Rates Reduced

CLEVELAND, June 6.

Officials of the northern railroads, at a conference with the representatives of ore firms in Chicago Monday, refused to make a reduction in rates of carrying ore from the mines to the upper Lake docks. They were asked to make a 10 per cent rate cut, as these rates were not included in the recent rate reduction order of the Interstate Commerce Commission. To-day the Interstate Commerce Commission ordered the 10 per cent reduction on rates on ore from the lower Lake ports to inland furnaces to become effective, after five days' notice, on June 15 instead of on July 1 as stipulated in the original rate reduction order. A report reached ore firms Monday that the Northern railroads had granted a 10 per cent reduction and ore prices would probably have been named to-day, had this report not proved untrue. It seems uncertain now whether the Interstate Commerce Commission will attempt to force the Northern railroads to cut the rates on ore and ore firms may wait a day or two to see if this situation is cleared up before announcing ore prices. The week's developments in ore rates included a 10c. reduction in the vessel rates. The Northern Pacific Railroad has filed a new ore tariff for shipments from the Cuyuna range to Superior to become effective June 15. Under this tariff the handling charge

of ore is increased from 5c. to 7c. per ton and the storage charge from ¼c. to 1.5c. per ton per day after 10 days.

We quote delivered lower lake ports: Old range Bessemer, 55 per cent iron, \$6.45; Old range non-Bessemer, 51½ per cent iron, \$5.70; Mesabi Bessemer, 55 per cent iron, \$6.20; Mesabi non-Bessemer, 51½ per cent iron, \$5.55.

Vessel Rates Reduced.—Vessel rates on ore have been established at a reduction of 10c. per ton from last year's rates from the head of Lake Superior, making 70c. the new rate from the head of the lake. The old differential on rates from other ports will be maintained, the new rates being 63c. from Marquette and 52½c. from Escanaba to Lake Erie ports and 42c. from Escanaba to South Chicago. Ore shipments by water during May were 1,585,305 gross tons or a decrease of 1,008,722 tons as compared with May, 1921. Shipments for the season up to June 1 were 1,721,406 tons as compared with 2,770,238 tons during the same period last year. The Pittsburgh Steamship Co., which has as yet shipped no ore, has ordered men to all of its steamers which will go in commission as soon as they are fitted out, but it will probably be the middle of the month before all these are started. The Steel Corporation subsidiary will also begin to load some outside boats early this week and independent interests will increase shipments.

Pig Iron.—The market has quieted down considerably after an active buying movement lasting for several weeks. Furnaces continue to make a fair volume of sales of foundry iron, but no large lots are involved. The largest orders include a few 500-ton lots and one 600-ton lot. Orders booked by one of the most active sellers fell to 3000 tons during the week as compared with about 9000 tons the previous week. The market is firm. The only change in the price situation is a 50c. per ton advance to \$23.50 by one Cleveland producer. Other lake furnaces are holding to a minimum price of \$23 on foundry iron and quotations range up to \$24 for local delivery. With the recent price advance, consumers are following a conservative course in buying iron for the third quarter and it is estimated that only about a third of the iron needed for that period has been contracted for. Because of the uncertainty as to costs owing to the fuel situation, one leading producer is selling very little iron for shipment beyond June. Basic iron is not active, but considerable demand is expected for this grade during the latter part of the month to cover July requirements. Southern iron is firm at a minimum price of \$18.50, Birmingham, with most producers asking \$19. We note the sale of 500 tons of Southern iron to the Standard Sanitary Mfg. Co., for its Louisville plant and several smaller lots at \$18.50. The McKinney Steel Co. will blow in another River furnace this week on basic iron. With the starting up of this furnace, the company will have all of its Cleveland stacks in operation.

Quotations below are f.o.b. local furnace for Northern foundry iron, not including a 56c. switching charge. Other quotations except basic are delivered Cleveland, being based on a \$1.96 freight rate from Valley points, a \$3.36 rate from Jackson and a \$6.67 rate from Birmingham:

Basic, Valley furnace.....	\$25.00
Northern No. 2 fdy., sil. 1.75 to 2.25.....	\$23.00 to 24.00
Southern fdy., sil. 1.75 to 2.25.....	25.17
Ohio silvery, sil. 8 per cent.....	33.86
Standard low phos., Valley furnace.....	34.00 to 35.00

Semi-Finished Steel.—A number of inquiries for sheet bars have come out for the third quarter delivery. The market is firm at \$35.

Finished Material.—The demand for finished material continues fairly heavy, the bulk of the business apparently going to the leading interest and to one independent producer that is still quoting 1.60c. for steel bars, plates and structural material. With no signs of let up in the demand for motor cars, the automobile industry continues to buy freely and the demand is becoming more active from other industries that were slow to feel the effect of the business revival. This is particularly true of the agricultural implement manufacturers who are now buying considerable steel. Plate prices still show an upward tendency with most of the independent mills now asking 2c. A local mill is now quoting light plates on a 2.10c. base or 2.52c. for No. 10 gage. One mill has advanced structural material to 1.80c. Structural work continues to come out in good volume. The Michigan Central Railroad has an inquiry

out for a new bridge at Niagara Falls, requiring 8000 tons of steel. The two lake passenger boats requiring 11,000 tons that have been pending for some time are expected to be placed within a week and two lake freight boats are still being figured on. Quotations have been taken for 1000 tons of reinforcing bars and 900 tons of sheet steel piling for the Union Trust Building, Cleveland. The Texas Co. has placed with a western Pennsylvania shop oil tank work requiring 1500 tons of plates which will be furnished by a Pittsburgh mill. A new Standard Oil inquiry for 20 stills will require 500 tons of plates. The Northern Ohio Traction & Light Co. has placed 350 tons of rails with a Buffalo mill. Reinforcing bars are in good demand, but prices on hard steel bars are irregular and quotations about 1.55c., Pittsburgh, have appeared in competition with soft steel bars.

Jobbers quote steel bars, 2.41c.; plates and structural shapes, 2.51c.; No. 9 galvanized wire, 3c.; No. 9 annealed wire, 2.50c.; No. 28 black sheets, 3.90c.; No. 28 galvanized sheets, 4.90c.; No. 10 blue annealed sheets, 3.15c. to 3.21c.; hoops and bands, 3.06c.; cold-rolled rounds, 3.20c.; flats, squares and hexagons, 3.70c.

Sheets.—The Brier Hill Steel Co. has advanced prices \$3 per ton for July delivery, making this price announcement only the day before the American Sheet & Tin Plate Co. announced that its present prices would continue through July. Some independent mills are quoting 3.20c. for black and 4.20c. for galvanized sheets for June and July shipments or \$1 per ton above present prices. The Ford Motor Car Co. has placed 2000 tons of automobile frame sheets with a Valley mill and it is understood it has purchased about a similar tonnage from another producer.

Warehouse Business.—Warehouse prices have been advanced \$2 per ton on steel bars, plates and structural material and \$5 a ton on hoops and bands. Warehouse orders are heavy. Some customers are now calling on jobbers for good-sized lots owing to slow deliveries by mills.

Coke.—A number of sales of Wise County and Indianapolis by-product foundry coke are reported in fair-sized lots at \$6 to \$6.50 for the former and \$8 for the latter. The only Connellsville foundry coke reported available at present is held at \$7.

Bolts, Nuts and Rivets.—The volume of bolt and nut orders continues fairly heavy. While there is some talk of a price advance late this month, some manufacturers are willing to take on third quarter contracts at present prices. Makers are complaining of a shortage of small nut steel. With increased operations, a labor shortage has developed, this being attributed to the fact that many former skilled employees got in other lines of work when bolt and nut manufacturers were operating their plants at a very limited capacity. The demand for rivets in lots up to carloads is good and the market is firm at regular prices except on small rivets on which quotations of 70, 10, 10 and 5 per cent off list have appeared.

Old Material.—The market is dull and the absence of the demand by consumers has resulted in a tendency toward weakness, consumers and dealers not being inclined to pay as high prices as have prevailed the previous two or three weeks. However, quotations are unchanged and an offer of lower prices has brought out very little material. There is a limited demand from dealers for heavy melting steel for shipment to Youngstown and a local dealer is offering \$13 to \$13.25 for borings and turnings for delivery to a Cleveland mill.

We quote per gross ton, f.o.b. Cleveland, as follows:

Heavy melting steel.....	\$15.25 to \$15.50
Steel rails, under 3 ft.....	15.75 to 16.00
Steel rails, re-rolling.....	16.00 to 16.50
Iron rails.....	14.00 to 15.00
Iron car axles.....	18.00 to 19.00
Low phosphorus melting.....	16.00 to 16.25
Cast borings.....	12.50 to 13.00
Machine shop turnings.....	11.75 to 12.00
Mixed borings and short turnings.....	12.50 to 13.00
Compressed steel.....	12.85 to 13.25
Railroad wrought.....	14.00 to 14.50
Railroad malleable.....	15.50 to 16.00
Light bundled sheet stampings.....	10.00 to 10.25
Steel axle turnings.....	13.00 to 13.50
No. 1 cast.....	17.00 to 17.50
No. 1 bushing.....	11.25 to 11.75
Iron forge flashings over 10 in.....	11.00 to 11.50
Drop forge flashings under 10 in.....	11.25 to 11.75
Railroad grate bars.....	14.00 to 14.50
Stove plate.....	14.00 to 14.50
Pipes and flues.....	11.00 to 11.50

Boston

BOSTON, June 6.

Pig Iron.—No expansion in sales of pig iron in this territory is noted. Requirements of textile machinery and car builders involving 1800 tons, noted a week ago, have not been covered. A Massachusetts stove maker since last reports purchased 300 tons No. 2X Alabama, fourth quarter iron from one furnace, and is negotiating with another Alabama furnace for an equal amount of third quarter iron. Sales otherwise involve smaller amounts of Buffalo, eastern and western Pennsylvania and Alabama, mostly silicon 2.75 to 3.25 to silicon 5.25 to 5.75. Buffalo irons sold at \$23 to \$25 furnace base, eastern Pennsylvania at \$24 to \$25, and Alabama at \$18.50. Erie, Pa., irons, having a \$6.58 freight, sold at \$22.50 furnace base, or \$29.08 delivered, contrasted with \$29.06 delivered for No. 2 plain, eastern Pennsylvania, at \$25 furnace, and \$29.46 delivered for No. 2 plain, Buffalo, at \$24 furnace base. The General Fire Extinguisher Co., Providence, R. I., is in the market for 500 to 1000 tons silicon 2.25 to 2.75, no delivery specified. No other important inquiry is noted. The available supply of iron has not increased and prices on all grades are very strong. The price of Susquehanna iron has been advanced to \$25, Buffalo, and orders for third quarter only will be accepted.

We quote delivered at common New England points as follows, having added to furnace prices \$4.06 freight from eastern Pennsylvania, \$5.46 from Buffalo, \$6.58 from Virginia and \$10.66 from Alabama:

East. Pa., sil. 2.25 to 2.75.....	\$28.56 to \$29.56
East. Pa., sil. 1.75 to 2.25.....	28.06 to 29.06
Buffalo, sil. 2.25 to 2.75.....	29.96 to 30.96
Buffalo, sil. 1.75 to 2.25.....	29.46 to 30.46
Alabama, sil. 2.25 to 2.75.....	29.66
Alabama, sil. 1.75 to 2.25.....	29.16
*Alabama, sil. 2.25 to 2.75.....	26.67 to 28.90
*Alabama, sil. 1.75 to 2.25.....	26.17 to 28.90

†Figured on an all-rail rate. *Figured on a rail and water rate.

Warehouse Business.—Some warehouse interests have had to put on additional trucks to keep up with business the past week, which was on a larger scale than for any previous week this year. Prices on iron and steel, especially on bars and structural steel, are strong, with sentiment among warehouse interests in favor of an advance. Stocks are far from excessive.

Jobbers quote: Soft steel bars, \$2.50½ per 100 lb. base; flats, \$3.15½; concrete bars, \$2.50 to \$2.78; structural steel, \$2.50½ to \$2.60½; tire steel, \$3.85 to \$4.25; open-hearth spring steel, \$4 to \$5.50; crucible spring steel, \$11.50; steel bands, \$3.00½ to \$3.53; hoop steel, \$3.41½; cold rolled steel, \$3.20 to \$3.70; refined iron, \$2.50½; best refined iron, \$4.25; Wayne iron, \$5.50; Norway iron, \$5.50; plates, \$2.65½ to \$2.83; No. 10 blue annealed sheets, \$3.48 per 100 lb. base; No. 28 black sheets, \$4.65; No. 28 galvanized sheets, \$5.65.

Coke.—New England producers of by-product foundry coke have advanced their price on contract fuel 75c. a ton to \$11 delivered where the local freight does not exceed \$3.40, and their price on spot fuel 50c. a ton to \$11.50 delivered. The change in the contract price is the first made since April 1. The price on spot fuel was advanced to \$11 the middle of last month.

Old Material.—The advance in the market for scrap used by steel mills is checked, due to the cessation of buying by Pittsburgh district interests. Eastern Pennsylvania mills continue to buy heavy melting steel at \$15.50 delivered or \$10.50 on cars, New England shipping points. They also are taking pipe at \$14 to \$14.50 delivered, while West Virginia mills are buying cotton ties at \$6.50 to \$7 on cars, New England. Bundled skeleton suitable for steel mills commands a slight premium over forged scrap.

The following prices are for gross ton lots delivered common consuming points:

No. 1 machinery cast.....	\$19.00 to \$20.00
No. 2 machinery cast.....	17.00 to 18.00
Stove plate.....	13.50 to 14.00
Railroad malleable.....	15.00 to 15.50
Street car wheels.....	18.00 to 19.00

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$10.50 to \$10.75
No. 1 railroad wrought.....	11.50 to 12.00
No. 1 yard wrought.....	10.00 to 10.50
Wrought pipe (1 in. in diameter, over 2 ft. long).....	8.50 to 9.00
Machine shop turnings.....	8.00 to 8.25
Cast iron borings, rolling mill.....	8.00 to 8.25
Cast iron borings, chemical.....	10.00 to 10.50
Blast furnace borings and turnings.....	8.00 to 8.25
Forged scrap.....	7.00 to 7.50
Bundled skeleton.....	7.50 to 8.00
Street car axles.....	13.50 to 14.00
Shafting.....	14.50 to 15.00
Re-rolling rails.....	11.00 to 11.50

CHINESE BUYING IMPROVES

Hong Kong and Harbin Merchants Purchase — Some Sales to Manila—Small Japanese Rail Purchase

NEW YORK, June 6.—Government and municipal buying, which has been the only active factor in Japanese trade, has not increased by any new tenders. Of the inquiries for medium section rails which have been in the market for two or three weeks from large private consumers, one, calling for 50 miles of 60-lb. rails, has been awarded to the Mitsubishi Shoji Kaisha, New York, and placed with the leading interest.

The Chinese market shows a considerable improvement in comparison to the small business that has been the rule for some time past. Several exporters report small orders of bars and sheets and one export company dealing exclusively with Chinese markets reports activity on quite a wide range of merchant products, chiefly to the Hong Kong district. One order alone, which totaled \$42,700, included 1000 boxes of tin plate, 60 tons of wire, 1600 picule kegs of nails and 122 tons of steel pipe.

From Harbin, Manchuria, an order was recently booked for 600 tons of black sheets. A consumer in Manila, P. I., has purchased 2750 kegs of wire nails and about 170 tons of galvanized sheets. Another order recently booked from China by this export company came from the Chinese Eastern Railway for a small tonnage of bars, flats, angles, etc.

An importer of German aluminum into the United

States reports that in contrast to the attitude of German sellers a few months ago, when it was difficult to obtain aluminum and prices quoted were high, sellers are again offering to make satisfactory shipments at fairly low prices. The independent attitude of producers is said to have been engendered by the heavy demand that suddenly sprang up in Germany from manufacturers of finished products. It is reported, however, that they found export of the finished aluminum unprofitable and the producers are once again seeking to extend their export markets, although at present the price is still fairly stiff.

A recent tender on 650 freight cars and 100 passenger cars issued by the Argentine State Railways resulted in low bids for both freight and passenger cars by Belgian builders, while the high bids came from British builders. American prices were higher than those submitted by German builders and lower than the British prices. The general improvement in demand from Argentina and other South American markets is reported continuing, although purchases are still small in size. The Bureau of Foreign and Domestic Commerce reports that construction work has begun on the new Bolivian-Argentine Railroad.

In May there were 32 blast furnaces in operation in Lorraine, against 30 in April, according to the United States Commercial Attaché in Paris. At the large plants in the Moselle district other blast furnaces are expected to be blown in if the arrivals of coke will permit.

The coke question, although not entirely solved, is no longer critical, the daily arrival of Westphalia coke now averaging 6000 metric tons.

FABRICATED STEEL BUSINESS

Bridge and Building Awards and Tonnages Pending at Leading Centers

Awards for fabricated steel work the past week were as follows:

Teachers' College, New York, library, etc., 1200 tons, the American Bridge Co., with erection by Bigelow & Nichols.

Shops for Pennsylvania Railroad at Pitcairn and Enola, Pa., 1900 tons, to American Bridge Co.

Kleckhefer Container Co., Camden, N. J., 650 tons, to McClintic-Marshall Co.

National bank building, Johnstown, Pa., 600 tons, to Jones & Laughlin Steel Co.

Gunpowder bridge, Baltimore, 650 tons, to Phoenix Bridge Co.

Richmond Trust Co., Richmond, Va., 800 tons, McClintic-Marshall Co.

J. Rubin warehouse, Brooklyn, 450 tons, to the Hedden Iron Construction Co.

School, Jersey City, 800 tons, Fagan Iron Works.

Office building at Tenth and Chestnut streets, Philadelphia, for P. S. Basehore and Emmet C. Roop, 1500 tons, to Phoenix Bridge Co.

Anchorage piers for Philadelphia-Camden bridge, requiring 2000 tons of I-bars and plate girder work and 2500 tons of reinforcing bars; general contract let to Keystone State Construction Co., Philadelphia, and Holbrook, Cabot & Rolins, Boston; American Bridge Co. low bidder on steel.

South Street bridge over Philadelphia, Baltimore & Washington Railroad tracks, Philadelphia, low bidder, Monahan & Losse, Philadelphia, 450 tons of steel.

Office building, Sixteenth and Walnut streets, Philadelphia, 850 tons, to Belmont Iron Works.

Recreation building and gymnasium for Girard College, Philadelphia, 1350 tons, to Shoemaker-Satterthwait Bridge Co.

Studebaker Corporation, body plant, South Bend, Ind., 162 tons, to Kenwood Bridge Co.

Office building for W. C. Tyrrell, Port Arthur, Tex., 109 tons, to Virginia Bridge & Iron Works.

Pennsylvania system, four single track deck plate girder spans, bridge No. 18, Louisville division, 154 tons, to unnamed fabricator.

Alabama & Vicksburg Railway, bridge over Yazoo & Mississippi Valley Railway near Vicksburg, Miss., 190 tons, to American Bridge Co.

Ainad Temple Association, East St. Louis, Ill., 279 tons, to St. Louis Structural Steel Co.

Washington Iron Works, boiler shop, Seattle, Wash., 301 tons, to United States Steel Products Co.

Superstructure, Federal Reserve Bank, Minneapolis, 1500 tons, to Minneapolis Steel & Machinery Co.

Corn Products Refining Co., plant addition, Kansas City, 100 tons, to Kansas City Structural Steel Co.

North Avenue Development Association, Milwaukee, clubhouse and business building, 140 tons, to Milwaukee Structural Steel Co.

City of Green Bay, Wis., Strauss trunnion bascule bridge, 500 tons; general contractor, Adolph Green Construction Co., to purchase steel.

Callaway Fuel Co., Milwaukee, coal shed, 125 tons, to Milwaukee Structural Steel Co.

Ford Motor Co., assembly plant at Green Island, N. Y., 900 tons, to Lackawanna Bridge Works Corporation.

Childs Restaurant Co., Buffalo, 200 tons, to Kellogg Structural Steel Co.

Building for A. W. Jack Corporation, Lockport, N. Y., 300 tons, to Jones & Laughlin Steel Co.

Addition to plant of Newton Steel Co., Newton Falls, Ohio, 850 tons to McClintic-Marshall Co.

Pittsburgh Y. M. C. A. building, 1500 tons to McClintic-Marshall Co.

Fresh fabricated steel projects have appeared as follows:

Pipe shop, machine shop, foundry and other buildings, M. W. Kellogg Co., Jersey City, 1500 tons.

Cadillac Lumber & Chemical Co., sawmill at Sault Ste. Marie, Mich., 250 tons; an equal amount will be later offered for bids; E. C. Hall, 221 Grand Avenue, Milwaukee, consulting engineer.

Fair Store garage, Chicago, 300 tons.

St. Paul, Minn., union station, \$2,000,000 addition, bids to be in June 14.

Building of 24 stories for Mayo Brothers, Tulsa, Okla.

Bank building at Ironton, Ohio, 230 tons, bids in.

South High School, Columbus, Ohio, 200 tons, Detroit fabricator reported to be low bidder.

Auditorium, Memphis, Tenn., 2200 tons, bids in.

Bank building, Ashland, Ky., 900 tons, bids close June 15.

Bridge work, Big Four Railroad and subsidiaries, 1200 tons, bids close June 12.

North High School, Columbus, Ohio, 600 tons, bids to be taken shortly.

Washington-Gladden High School, Columbus, 800 tons, bids close June 15.

Kresge Building, Detroit, 400 tons, bids taken.

Grade crossing commission work, Buffalo, 500 tons, bids taken.

First National Bank, Ironton, Ohio, 300 tons, bids taken.

Broad View Market, Cleveland, 100 tons.

Pearl Street Savings & Loan Co., Cleveland, bank building, 200 tons.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Plates

sheared, tank quality, base, per lb.....1.60c. to 1.75c.

Structural Material

Beams, channels, etc.....1.60c. to 1.75c.

Iron and Steel Bars

Soft steel bars, base, per lb.....1.60c. to 1.75c.

Refined iron bars, base, per lb.....2.10c. to 2.20c.

Hot-Rolled Flats

Hoops, base, per lb.....2.40c. to 2.60c.

Rails, base, per lb.....2.40c. to 2.60c.

Strips, base, per lb.....2.40c. to 2.60c.

Cold-Finished Steels

Bars and shafting, base, per lb.....2c.

Strips, base, per lb.....4.00c.

Wire Products

Nails, base, per keg.....\$2.40 to \$2.50

Bright plain wire, base, per 100 lb.....2.25

Annealed fence wire, base, per 100 lb.....2.25

Galvanized wire, base, per 100 lb.....2.75

Galvanized barbed, base, per 100 lb.....3.05 to 3.15

Painted barbed, base, per 100 lb.....3.05 to 3.15

Polished staples, base, per keg.....2.55 to 2.65

Cement coated nails, base, per count keg.....1.90 to 2.00

Woven fence, carloads.....70½ per cent off list

Bolts and Nuts

Machine bolts, small, rolled threads.....65, 10 and 5 per cent off list

Machine bolts, small, cut threads.....65 and 5 per cent off list

Machine bolts, larger and longer.....65 and 5 per cent off list

Carriage bolts, ½ x 6 in.:

Smaller and shorter, rolled threads.....65 and 5 per cent off list

Out threads.....60 and 5 per cent off list

Longer and larger sizes.....60 and 5 per cent off list

Lag bolts.....65 and 10 per cent off list

Plow bolts, Nos. 1, 2 and 3 heads.....50 and 10 per cent off list

Other style heads.....20 per cent extra

Machine bolts, c.p.c. and t. nuts, ½ x 4 in.:

Smaller and shorter.....60 per cent off list

Larger and longer sizes.....60 per cent off list

Hot pressed square or hex. blank nuts.....\$4.75 off list

Hot pressed nuts, tapped.....\$4.75 off list

C.p.c. and t. sq. or hex. nuts, blank.....\$4.75 off list

C.p.c. and t. sq. or hex. nuts, tapped.....\$4.75 off list

Semi-finished hex. nuts:

9/16 in. and smaller, U. S. S.....75, 10 and 5 per cent off list

Small sizes, S. A. E.....80 and 2 tens per cent off list

S. A. E. ½ in. and larger.....80 and 5 per cent off list

Stove bolts in packages.....80, 10 and 5 per cent off list

Stove bolts in bulk.....80, 10, 5 and 2½ per cent off list

Tire bolts.....65 and 5 per cent off list

Track bolts in carloads.....3.00c. to 3.25c. base

Track bolts, less than 200 kegs.....3.50c. to 3.75c. base

Upset Square and Hex. Head Cap Screws

½ in. and under.....80 and 10 to 80, 10 and 10 per cent off list

9/16 in. to ¾ in.....80 and 10 to 80, 10 and 10 per cent off list

Upset Set Screws

½ in. and under.....80, 10 and 5 to 85 per cent off list

9/16 in. to ¾ in.....80, 10 and 5 to 85 per cent off list

Milled Square and Hex. Cap Screws

All sizes.....75 and 10 to 80 per cent off list

Milled Set Screws

All sizes.....70, 10 and 10 per cent off list

Rivets

Large structural and ship rivets, base per 100 lb.....\$2.25

Large boiler rivets, base per 100 lb.....2.35

Small rivets.....65 and 10 to 70, 10 and 10 off list

Track Equipment

Spikes, 9/16 in. and larger, base, per 100 lb.....\$2.25

Spikes, ¾ in. and smaller, base, per 100 lb.....2.50

Spikes, boat and barge, base, per 100 lb.....2.50

Track bolts, base, per 100 lb.....3.00

Tie plates, per 100 lb.....1.75 to 2.00

Angle bars, base, per 100 lb.....3.40

Welded Pipe

Butt Weld

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
1½	54½	28	28	1½ to 2	3½	3½	22½
2	60	33½	33½	2 to 2½	36½	36½	18½
2½	65	50½	50½	2½ to 3	42½	42½	27½
3	69	56½	56½	3 to 3½	44½	44½	29½
3½	71	58½	58½				

Lap Weld

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
2	64	51½	51½	2	39½	39½	25½
2½ to 6	68	55½	55½	2½ to 6	42½	42½	29½
7 to 8	65	51½	51½	7 to 12	40½	40½	27½
9 to 12	64	50½	50½				

Butt Weld, extra strong, plain ends

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
1½	50½	33	33	1½ to 2	4½	4½	37½
2	56	38½	38½	2 to 2½	35½	35½	23½
2½	62	50½	50½	2½ to 3	42½	42½	28½
3	67	55½	55½	3 to 3½	44½	44½	30½
3½	69	57½	57½				
4	70	58½	58½				

Lap Weld, extra strong, plain ends

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
2	62	50½	50½	2	40½	40½	27½
2½ to 4	66	54½	54½	2½ to 4	43½	43½	31½
4½ to 6	65	53½	53½	4½ to 6	42½	42½	30½
7 to 8	61	47½	47½	7 to 8	35½	35½	23½
9 to 12	55	41½	41½	9 to 12	30½	30½	18½

To the large jobbing trade the above discounts are increased by one point, with supplementary discounts of 5 and 2½ per cent.

Boiler Tubes

Lap Welded Steel

Inches	Steel	Black	Galv.
1½ in.	26½	26½	26½
2 to 2½ in.	41	41	41
2½ to 3 in.	52	52	52
3½ to 13 in.	57	57	57

Charcoal Iron

Inches	Charcoal Iron
1½ in.	5
1½ to 1¾ in.	16
2 to 2½ in.	26
2½ to 3 in.	39
3½ to 4½ in.	58

To large buyers of steel tubes a supplementary discount of 5 per cent is allowed.

Standard Commercial Seamless Boiler Tubes

Discounts on cold-drawn or hot-rolled tubes in carload lots, f.o.b. Pittsburgh, follow:

Inches	Discount	Inches	Discount
1 in.	63	2½ and 2¾ in.	46
1½ and 1¾ in.	55	3 in.	50
1¾ in.	36	3½ to 4 in.	55
2 and 2¼ in.	42	4½ in. to 5 in.	47

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Tin Plate

Standard cokes, per base box.....\$4.75

Terne Plate

(Per package, 200-lb.)

Coating	Price	Coating	Price
8-lb. coating	\$9.30	25-lb. coating I. C.	\$14.25
8-lb. coating I. C.	9.60	30-lb. coating I. C.	15.25
15-lb. coating I. C.	11.80	35-lb. coating I. C.	16.25
20-lb. coating I. C.	13.00	40-lb. coating I. C.	17.25

Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb.....2.40c.

Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb.....3.15c.

Galvanized

No. 28 (base), per lb.....4.15c.

Tin-Mill Black Plate

No. 28 (base), per lb.....3.15c.

Manufacturers have pamphlets, which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic.....\$0.36	Buffalo.....\$0.395	Kansas City.....\$0.315	Pacific Coast.....\$1.665
Philadelphia, export.....0.265	Cleveland.....0.24	Kansas City (pipe).....0.77	Pac. Coast, ship plates 1.335
Baltimore, domestic.....0.25	Detroit.....0.235	St. Paul.....0.445	Birmingham.....0.765
Baltimore, export.....0.255	Cincinnati.....0.235	Omaha.....0.815	Memphis.....0.43
New York, domestic.....0.33	Indianapolis.....0.245	Omaha (pipe).....0.77	Jacksonville, all rail.....0.555
New York, export.....0.285	Chicago.....0.28	Denver.....1.35	Jacksonville, rail and water.....0.46
Boston, domestic.....0.495	St. Louis.....0.475	Denver (wire products) 1.415	New Orleans.....0.57
Boston, export.....0.385			

The minimum carload to most of the foregoing points is 50,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 50,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 5c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 40,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 55c.; ship plates, 75c.; ingot and muck bars, structural steel, common wire products, including cut or wire nails, spikes and wire hoops, 75c.; sheets and tin plates, 40c. to 75c.; rods, wire rope, cable and strands, 81c.; wire fencing, netting and stretcher, 75c.; pipe, not over 6 in. in diameter, 75c.; over 6 in. in diameter, 2½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

NON-FERROUS METALS

The Week's Prices

	Cents Per Pound for Early Delivery					
	Copper, New York		Tin Straits	Lead		Zinc
	Lake	Electro-lytic*	New York	New York	St. Louis	New York St. Louis
May 31.....	13.87½	13.62½	31.75	5.80	5.50	5.60 5.25
June 1.....	14.00	13.75	31.87½	5.80	5.50	5.60 5.25
2.....	14.00	13.75	31.87½	5.80	5.50	5.65 5.30
3.....	14.00	13.75	.....	5.80	5.50	5.65 5.30
5.....	14.00	13.75	32.25	5.80	5.50	5.67½ 5.32½
6.....	14.00	13.75	32.50	5.80	5.50	5.67½ 5.32½

*Refinery quotation.

New York

NEW YORK, June 6.

The markets are all fairly active and prices tend toward higher levels. Copper for June delivery is not so plentiful. The tin market has not been unusually active, but prices are higher, based largely on reports of a better statistical position. Lead holds its own, and is slightly higher than a week ago. Zinc demand is in excess of the current production and prices tend higher.

Copper.—Since the first of the month the tone of the copper market has been decidedly strong, and it is doubtful now whether electrolytic for June shipment is to be had below 14c., delivered. Some producers are well sold up for June, while others will take only limited amounts for shipment this month combined with orders for July-August delivery. A sale of 2,000,000 lb. for June-July-August shipment at 14c., delivered, was made a day or two ago and other large sales have figured in the week's transactions. Brass manufacturers and makers of copper wire are active buyers. It appears that brass manufacturers are getting to the bottom of their stocks of scrap copper and are using more new metal. The same situation holds true in England, where war stocks of scrap copper were expected to last until September, but are now becoming exhausted. This has resulted in a more active demand from England. Germany also continues to figure largely in current export transactions. Representatives abroad of copper producers have no difficulty in disposing readily of the allotments that are made to them.

Copper Averages.—The average price of Lake copper for the month of May, based on daily quotations in THE IRON AGE, is 13.38c. The average price of electrolytic copper was 13.13c., refinery, or 13.38c. delivered.

Tin.—While the week has been quiet, tin has shown a fair degree of strength and prices have shown a slightly upward tendency. On May 31 25 tons of spot Straits was sold on the Metal Exchange at 31.62½c. On June 1 another lot of 25 tons was sold for August delivery at the same price. On June 2 there was a sale for June-July delivery at 31.75c. and also on that day there were further sales outside of the exchange for later delivery at prices up to 31.87½c. On June 5 the market was quoted at 32.25c. and on the 6th at 32.50c. London cables to-day report spot standard at £154 15s. and futures at £155 17s. 6d. Spot Straits was quoted at £157 15s. and the Singapore price was £159 5s. The statistical position of tin, it developed during the week, was not so bad as had been expected. The increase in the visible supply was less than 1000 tons, whereas some had predicted that it would amount to 2000 tons. The sharp rise in British exchange, which to-day was at \$4.51¼, has had considerable influence on the price of tin as quoted here in cents.

Lead.—Lead is firm and continues in good demand. The American Smelting & Refining Co. last week advanced its price to 5.65c., New York, but it is selling in a limited way and, of course, hasn't enough to supply all of the demand. In the outside market it appears that nothing below 5.50c., St. Louis, and 5.80c., New York, can be done, while up to 5.90c., New York, has been paid. There has been an advance in lead pigments of ¼c. per lb.

Zinc.—The demand for zinc continues strong. The

fact that sheet manufacturers have opened their books for third quarter business makes it necessary for them to cover on zinc for galvanizing work and there is a demand for delivery running well into the third quarter. On Tuesday a leading producer declined to sell at 5.37½c. per lb., St. Louis, for July, and it is stated that 5.40c. could readily be obtained. Dealers have been bidding for supplies, offering 5.35c., St. Louis, so it is probable that they expect to sell at not less than 5.40c. Demand exceeds the quantity that is being produced, some producing plants being affected by labor troubles. The minimum at which sales were made on Monday and Tuesday of this week was 5.32½c. per lb., St. Louis.

Aluminum.—Imported aluminum is well sold ahead and on the limited amount that is available 18.50c. to 19c. per lb., New York, duty paid, is being quoted. The leading domestic producer continues to quote the virgin metal, 98 to 99 per cent pure, at 19c. to 19.10c., f.o.b. plant.

Antimony.—There is an easier situation in antimony and 5.25c. per lb., New York, seems to be the top of the market. This price, it is stated, could probably be shaded.

Old Metals.—Business has been fairly good this week and though prices have not advanced much, the market has been firm. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	13.25
Copper, heavy and wire.....	12.25
Copper, light and bottoms.....	10.75
Heavy machine composition.....	10.00
Brass, heavy.....	7.50
Brass, light.....	6.25
No. 1 red brass or composition turnings.....	8.50
No. 1 yellow rod brass turnings.....	6.50
Lead, heavy.....	4.50
Lead, tea.....	3.50
Zinc.....	3.00

Chicago

JUNE 6.—The market is generally stronger and all the metals have advanced except antimony which is slightly weaker. Old metals remain unchanged with the exception of copper bottoms which registered a further advance. We quote in carload lots: Lake copper, 14.87½c; tin, 33.50c to 33.75c; lead, 5.65c; spelter, 5.45c; antimony, 7.10c, in less than carload lots. On old metals we quote: Copper wire, crucible shapes and copper clips, 10.75c; copper bottoms, 8.75c; red brass, 8.25c; yellow brass, 6.75c; lead pipe, 4.25c; zinc, 2.75c; pewter, No. 1, 20c; tin foil, 22.50c; block tin, 25c; all buying prices for less than carload lots.

St. Louis

ST. LOUIS, June 6.—Lead was strong for the week, advancing 15 points to 5.65c., carlots, due to the advance made by the leading producer, while slab zinc advanced 10 points to 5.25c. On old material we quote: Light brass, 3.50c.; heavy red brass and light copper, 7c.; heavy yellow brass, 4c.; heavy copper and copper wire, 7.50c.; zinc, 2c.; pewter, 15c.; tin foil, 16c.; tea lead, 2c.; aluminum, 9c.

The Interstate Commerce Commission has suspended until Sept. 28, the operation of tariffs proposing increases in rates on iron and steel products from the Buffalo-Pittsburgh territory to Johnson City, Tenn., and Bristol, Tenn.-Va., and related points. The case involves a readjustment of rates growing out of the fact that those to Bristol are lower than rates to Johnson City.

Contract for the mill equipment and machinery for the six-mill extension to its sheet mill plant has been awarded by the Newton Steel Co., Youngstown, Ohio, to the Hyde Park Foundry & Machine Co., Hyde Park, Pa. Gears and drives, exclusive of the motor, were awarded the Mesta Machine Co., Pittsburgh.

Working schedules in various Boston & Maine Railroad Co. shops have been increased from 40 to 48 hr. per week. The 48-hr. schedule was in operation several months.

FOUNDRY CONVENTION

International Session Features Opening Meeting at Rochester—Notable Exhibition

ROCHESTER, N. Y., June 6.—The most notable meeting in the history of the American Foundrymen's Association was held this morning at Exposition Park under the title of "An International Session." Chairman A. O. Backert, in opening the session, referred to the plan recently inaugurated of an exchange of papers between the American association and British and European associations, announcing the presence at this meeting of distinguished foreign visitors, representing Great Britain, France and Belgium.

He introduced F. J. Cook, past president of the Institution of British Foundrymen; Raymond Gailly, of Charleroi, France, and M. Remy, of Herstal, Belgium, each representing respectively the British, French and Belgian foundry associations. Letters of greetings were read to the large attendance by the French and Belgian representatives and Mr. Cook read a cablegram of heartiest greetings from the two British foundrymen who recently toured this country, Oliver Stubbs and Thomas Firth.

The feature of the meeting was a paper comparing American and British cast iron by Mr. Cook. The paper was freely discussed and will be fully reported in THE IRON AGE of June 15. American foundry interests in the shape of papers and discussions were ably represented by Dr. Richard Moldenke, Walter Wood and others.

A committee, consisting of C. R. Messenger, R. A. Bull and G. H. Clamer, was appointed to draft a message of good-will to members of European foundry associations.

A gratifyingly large registration has already been recorded and the exhibition is fully up to the standard of previous ones, particularly as regards diversity of lines represented. Considerable enthusiasm marks gatherings, doubtless the result of this being the first annual meeting since October, 1920.

Protest Against Freight Rates to Texas

WASHINGTON, June 6.—Independent iron and steel producers of the Pittsburgh and Valley districts have filed a petition with the Interstate Commerce Commission protesting against rates on iron and steel products from those districts referred to as the Pittsburgh territory, to points in Texas. The protest is directed against a supplement in tariff rates which has been issued to become effective June 15. Request is made by the manufacturers for suspension of seven items on the ground that the differentials for the Pittsburgh territory are not reduced by the same percentage as the base rate from St. Louis or the through rate from Chicago and Birmingham, Ala., which, it is claimed, would be unduly favored.

Southern Stocks Decline

BIRMINGHAM, ALA., June 6.—Stocks on Alabama furnace yards on June 1 had reached a record low point. Stocks May 1 and June 1 were: Foundry, 41,000 and 30,000 tons; machine cast, 20,000 and 12,000 tons; warrants, 1600 and 2400 tons; basic, 18,000 and 15,000 tons; totals, 81,000 and 60,000 tons. The largest single holdings of merchant iron are 13,000 tons and next largest 6000 tons.

Wages of 2,000 Advanced

The Central Steel Co., Massillon, Ohio, placed a general wage advance of approximately 10 per cent in effect Monday. This applies to about 2000 employees at the Central Steel, Massillon Rolling Mill and Pressed Steel plants.

That unemployment in France is rapidly decreasing is indicated by figures published by the London Economist, which shows the number of persons receiving unemployment allowances during each month of 1921 and four months of 1922. From 91,225, in March, 1921, the number has fallen each succeeding month, without a break, to 6354 in April, 1922.

THE THREE-SHIFT DAY IN STEEL

Why Claims of Increased Output Are Not Well Founded

James Bowron, chairman Gulf States Steel Co., Birmingham, Ala., writing to the editor of THE IRON AGE concerning the article "Three Shifts More Costly Than Two," in the issue of May 18, page 1353, reviewing the experience of European steel works with the eight-hour shift in continuous processes, makes this comment:

"Of course the increase in cost goes without saying. I am interested, however, to notice that several people insist, as stated, in the second paragraph of the article, that the output would be increased. Obviously this can only occur physically, where the strength and skill of the worker is sustained and not dulled by fatigue, in the individual production by himself of a certain item or unit. This argument could have no possible effect or bearing upon natural processes such as the melting and purifying of the bath in an open-hearth furnace, or the downward movement and de-oxidation of ore in the blast furnace, or the gradual carbonization of coal in the by-product oven. These three are the processes and are practically the only processes connected with the steel trade where the 12-hour shift still exists, and as they are natural developments which go on utterly irrespective of the number of men outside the furnaces or the hours they work, there can be neither increase nor decrease as the result of any modification of the working hours of those around them. The length of an open-hearth turn depends on the calorific power of the gas, the angle at which it is directed upon the stock, the purity of the materials charged into the bath, and the quality of metal desired to be obtained.

"It is a totally different proposition when one man sits in front of an individual machine turning out certain units—in that case undoubtedly the output per hour should be affected by the length of hours worked, but so far as I know there is nothing of that sort existing in the steel trade, as all such work is on the shorter turn than 12 hours."

Engineers' Survey of Three-Shift Work Day

Progress in a national survey of the two-shift day in American industries was reported by the American Engineering Council's committee on work periods in continuous industries at a meeting of the council's executive board in Pittsburgh, May 27. This survey has been in progress for more than a year and purposes an exposition of industrial conditions which shall form a basis for establishing the relative merits of three shifts of 8-hr. each and two shifts of 12-hr. each.

Dr. H. E. Hower, of the National Research Council, Washington, is chairman of the committee, which has, it was announced, investigated and accumulated an enormous amount of data in the metal industries, glass and cement, lime, brick and pottery, the chemical industry, sugar, salt, petroleum, cottonseed and other vegetable oils; paper, flour, rubber, miscellaneous manufactures, mines, electricity, gas, water, ice; transportation, communication, care-taking and personal service.

The executive board voted to refer the report to the committee on procedure, of which Calvert Townley, New York, is chairman. This committee will direct the work of putting into shape for publication the mass of material contained in the findings and will report the results to the next meeting of the board. The gathering and preparation of this material in form available to the general public was declared to be one of the most momentous tasks ever carried on under the auspices of American engineering.

The steel industry came in for consideration. Approval of Bradley Stoughton, New York, formerly secretary of the American Institute of Mining and Metallurgical Engineers, as director of this field study was voted by the executive board.

PERSONAL

Herbert H. Springford, whose election as president the Steel & Tube Co. of America was announced in THE IRON AGE of June 1, has been with the Goodyear Tire & Rubber Co. at Akron, Ohio, for the past year. He was made treasurer of that company when New York, Chicago and Cleveland bankers took control under an \$85,000,000 re-financing program. In December, 1921, Mr. Springford was appointed also special assistant to the president and, during the latter's absence on an extended business trip to South America, assumed active charge of the Goodyear plant. Prior to going to Akron, Mr. Springford was for 18 years identified with the Schlesinger interests at Milwaukee, having started as an accountant, and rising to the position of assistant to the president and assistant treasurer the Steel & Tube Co. of America. Mr. Springford was born in England in 1878 and was educated in that country. After a residence of seven years in Canada, he went to Great Falls, Mont., in 1901, to enter the accounting department of the Boston & Montana Consolidated Copper & Silver Mining Co., later absorbed by the Anaconda Copper Mining Co. From Great Falls he went to Milwaukee in 1904, as previously indicated. Mr. Springford will have his headquarters at Chicago.



HERBERT H. SPRINGFORD

Frank F. Corby, who recently was elected to the board of directors and made vice-president in charge of sales of the Steel & Tube Co. of America, Chicago, had been general manager of sales of that company since its organization about four years ago, and for 20 years prior to that was sales manager of the Mark Mfg. Co. B. T. Bechtel, formerly assistant general manager of sales, has been made general manager of sales, succeeding Mr. Corby. Mr. Bechtel was located in Pittsburgh as district manager of sales for the Mark Mfg. Co. for a period of 10 years prior to going to Chicago about six years ago.



FRANK F. CORBY

Col. N. C. Hoyles has been appointed district manager of the St. Louis sales office and inspection bureau which the Pittsburgh Testing Laboratory has established at 1864 Railway Exchange Building, St. Louis. Colonel Hoyles is a graduate of Queens University. After a post graduate course at the University of Toronto, he entered the service of the company as an inspector at the Birmingham office in 1908. In 1912 he was promoted to manager of the Birmingham office; in 1914 was transferred to the Vancouver office, and at the breaking out of the war, he entered the service of the Canadian Army, serving with the British pioneer engineers corps in France. He received decorations from both the French and British Governments, and upon his release from the army in 1919, he was appointed the laboratory's assistant sales manager at Cleveland. Since that time he has been consecutively assistant sales manager at New York and manager at Cincinnati, until his appointment to this new position.

Arthur J. Tuscany has been appointed secretary and manager of the Ohio State Foundrymen's Association, 511 Wade Building, Cleveland, succeeding Samuel Powell, Jr., who has accepted a position in the Northwest.

Harry E. Figgie, formerly in charge of sales for the Perfection Spring Co., Cleveland, has accepted a similar position with the Standard Steel Spring Co., Coraopolis, Pa. Mr. Figgie is a graduate of the Case School of Applied Science. He spent a number of years in the shop before taking up the selling of springs.

Frank O. Gordon, treasurer, the Pittsburgh Testing Laboratory, has been elected secretary of the organization, succeeding J. M. Bailey, and will fill the offices of both treasurer and secretary.

H. V. Smallwood, purchasing agent at the Portsmouth, Ohio, works, Wheeling Steel Corporation, since 1918, has been transferred to Wheeling and promoted to the position of general purchasing agent, having charge of purchases of raw materials for the entire company. Mr. Smallwood, before going to the Portsmouth, Ohio, works, was with the Youngstown Sheet & Tube Co., Youngstown, Ohio, and prior to that with LaBelle Iron Works, Steubenville, Ohio.

W. Woodward Williams has been appointed vice-president of the Titan Iron and Steel Co., mechanically puddled wrought iron, Newark, N. J. Mr. Williams graduated from Harvard University in 1905. After six years in the mills of the Carnegie Steel Co. at Pittsburgh, Duquesne and Youngstown, he entered the sales department of the Bowne-Fuller Co., Cleveland, and was later appointed manager of its Pittsburgh office. In January, 1914, he became general manager of sales of the A. M. Byers Co., Pittsburgh, and subsequently was made its general manager. In August, 1919, he became general manager of the Reading Iron Co., and afterward was elected vice-president, in charge of sales and operations. In September, 1920, he became associated with the Pittsburgh Gage & Supply Co., the largest jobber of wrought iron pipe in the United States, resigning the vice-presidency on May 31, 1922, and entering immediately upon his present office of vice-president of the Titan Iron & Steel Co., Inc.



W. W. WILLIAMS

Andrew Glass, vice-president in charge of operations, Wheeling Steel Corporation, has resigned, effective July 1, and will be succeeded by William J. Stoop, who has been assistant to Mr. Glass. The latter, who is a nephew of Alex Glass, chairman Wheeling Steel Corporation, has been identified with the companies now comprising the Wheeling Steel Corporation since early manhood. He was general manager of the Portsmouth, Ohio, works, Whitaker-Glessner Co., when the Wheeling Steel Corporation was formed in 1920 and was made president of the Whitaker-Glessner Co. and vice-president of the Wheeling Steel Corporation. Mr. Glass will be associated with W. M. MacCleary in a brokerage business in iron, steel and allied products.

T. H. Edwards, for many years superintendent, steel works department, Benwood, W. Va., plant, Wheeling Steel Corporation, has resigned that position and has retired from active connection with the industry. He has been in the steel business for fifty years. He will join his family now in Denver, Col. His successor has not yet been named.

Harry Greifzu, for many years with the Pulaski

Iron Co., Real Estate Trust Building, Philadelphia, has joined the sales organization of Pilling & Co., pig iron, Philadelphia.

R. W. Clark, for over 22 years with Rogers, Brown & Co., has resigned and become New York manager of the pig iron department of Pilling & Co., 2 Rector Street. Mr. Clark's affiliation marks the beginning of an expansion program of Pilling & Co., in the New York district, as heretofore there was no exclusive pig iron representative in the New York office. Mr. Clark was born in Chicago, educated in the public schools there, and in January, 1900, entered the employ of Rogers, Brown & Co., in the Chicago office, later going to Buffalo, then to Boston and for the past 15 years has been representative at the New York office. During the war, he was chief of the raw materials priority division, Ordnance Department, at Bridgeport, and was also regional priority adviser for the Government in sub-district 2, with headquarters at Bridgeport. Pilling & Co. will become one of the largest merchant iron factors in the East from the standpoint of iron tonnage represented, selling numerous brands of foundry, forge, malleable and basic irons. They represent the E. & G. Brooke Co. at Birdsboro, Pa., with 85,000 tons per year capacity; the Nicolo phosphorus furnace of the Northern Iron Co., two furnaces at Wharton, N. J., of the Replogle Steel Co., with a capacity of 292,000 tons; the Everett stack at Earlston, Pa., with 100,000 tons, and two furnaces at Saxton, Pa., with 75,000 tons capacity, the furnaces at Earlston and Saxton being owned by Joseph E. Thropp. Besides handling pig iron, Pilling & Co. will deal in coke, alloys and kindred products.



R. W. CLARK

Frank E. Fitts, who has been connected with the Boston office of Rogers, Brown & Co. since 1904, will be transferred to the New York office of that firm June 12. Mr. Fitts graduated from Harvard in 1903 and began his business career with Rogers, Brown & Co. in that year. During the war he acted as treasurer of the Duxbury branch of the American Red Cross.

Fred B. Quigley, since 1912 assistant superintendent of blast furnaces of the Carnegie Steel Co. at Youngstown, Ohio, has been appointed superintendent of open-hearth furnaces and the Bessemer department, succeeding William C. Bulmer, resigned. On June 1 Mr. Bulmer assumed charge of the sales and installation of water-cooling appliances for open-hearth furnaces of the Blaw-Knox Co., Pittsburgh. Mr. Quigley has been connected with the Carnegie company in the Youngstown district for fourteen years, following his graduation from Case School of Applied Science. From 1912 until two years ago he was assistant blast furnace superintendent at the Ohio works, in immediate charge of the company's furnace at Niles, Ohio. Upon the banking of the Niles furnace, Mr. Quigley was transferred to the Ohio works.

Norman R. Seidle has resigned as assistant general manager the James G. Heggie Co., Joliet, Ill., to become works manager of the General Boilers Co., Waukegan, Ill. The General Boilers Co. manufactures steel-welded boilers (Pacific type) for all general heating purposes.

William Ely Nelson, who has been selling Firth-Sterling steels for 20 years, has been selected by E. S. Jackman & Co., Chicago, western agents of the Firth-Sterling Steel Co., to take charge of the new branch office in Los Angeles. Fred J. Kuhlman, L. W. Mead and C. D. Moore will be associated with Mr. Nelson.

W. E. Whiting is now associated with the Greenfield Tap and Die Corporation in the machine tool division and will be located at 2990 Concord Avenue, Detroit. Mr. Whiting has been connected with the grinding industry for 14 years. From 1909 to 1916 he was with the Heald Machine Co., Worcester, Mass. In 1916 he went to the Norton Co. where he did laboratory and demonstration work for a short time. For the last four years, he has handled sales in Michigan for the grinding wheel division of the Norton Co.

Hazen B. Hinman, for the past year steel salesman, Stanley Works, New Britain, Conn., and prior to that superintendent of the cold rolled mill, has accepted the superintendency of a unit of Trumbull Steel Co., Warren, Ohio.

The Cleveland Piston & Mfg. Co., Cleveland, has elected Alfred A. Abmramoska, formerly chief engineer of the Foster Machine Co., Elkhart, Ind., its president. John R. Foster, formerly assistant superintendent of the Foster company, has become vice president and general manager, J. W. Robinson, secretary and John H. Cox, treasurer.

C. L. Collens, second president, Reliance Engineering Co., Cleveland, has been elected president of the Cleveland Engineering Society.

B. L. Morgan has been appointed superintendent of the Erie Specialty Co., Erie, Pa.

John F. Schurch has been elected a vice president of Manning, Maxwell & Moore, Inc., and on June 1 took charge of Western sales, with headquarters at the company's Chicago office, 27-29 North Jefferson Street, Chicago. Mr. Schurch was graduated from the University of Minnesota in 1893 and entered the service of the Minneapolis, St. Paul & Sault Ste. Marie R. R., with which he was connected for several years, leaving that position to become associated with the Railway Materials Co., Chicago. In 1914 he was elected vice president of the T. H. Symington Co.

Albert L. Marks, for 32 years connected with the Joseph interests in the scrap iron business, has resigned as vice president and director of the David J. Joseph Co. and will go into the scrap business in Chicago.

William J. Merten, metallurgical engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been elected vice-chairman of the Pittsburgh chapter of the American Society for Steel Treating. He is the author of a number of technical articles on metallurgical and chemical subjects. He is also a member of the American Institute of Mining and Metallurgical Engineers, the American Chemical Society and the Engineers' Society of Western Pennsylvania. He is a native of Germany. Since 1899 when he came to this country, he has been affiliated with the Westinghouse companies, the Firestone Steel Products Co., Akron, Ohio; the Twin City Forge & Foundry Co., Stillwater, Minn., and the Ohio Brass Co., Mansfield, Ohio. Since Nov. 1, 1919, he has been in the materials and process engineering department, Westinghouse Electric & Mfg. Co. He was graduated from the Carnegie Institute of Technology in 1912 as a bachelor of science in metallurgical engineering.

Alexander Legge, vice-president and general manager the International Harvester Co., with headquarters at Chicago, has been elected president to succeed Harold F. McCormick, resigned to become chairman of the executive committee. Mr. Legge has been with the company for 30 years, having started service as a collector in a remote branch office. In 1913 he became general manager. In 1919 he was appointed vice-president and general manager, the position he has occupied up to the present time. During the war he was vice-chairman of the War Industries Board. Immediately following the armistice he went to Europe and spent time in France, Germany and Russia, where he assisted in reorganizing the company's industries.

A. D. Halporn, associated for some time with the Philadelphia sales staff of the Combustion Engineering Corporation, has now become a member of the New York staff.

DISAPPOINTING COAL OUTPUT

Improvement in Strike Situation Comes Very Slowly

PITTSBURGH, June 6.—It is difficult to detect any material improvement in the coal strike situation from the angle of production. While there is pretty steady accretion to the working forces in the Connellsville district, the movement lacks both force and numbers and the increase in the production of coal and coke is very gradual. Outside of a few mines just over the Pennsylvania border in West Virginia, union mines still are down tight in this district. Coal loadings still are averaging about 2000 cars daily in the western Pennsylvania and adjacent fields, or about 25 per cent of normal capacity. Because of the holiday last week, the production for that period fell below that of the previous week and the loss of union mine production this week seems to occasion more concern than hitherto has been noted. If enough non-union coal were available to get along with only moderate drafts upon reserves, the situation would be fairly comfortable, but the non-union mines have not functioned as well as had been expected and this has forced the use of accumulated stocks to a greater extent than had been planned.

Demand for coal has increased since the recent conference in Washington, and whatever weakness prices displayed a week ago has disappeared. Kentucky coal now is bringing \$3.25 to \$3.50 at mines as compared with \$2.75 to \$3 a week ago and there has been almost as great an advance in southern West Virginia coal, which now is generally quoted at \$3.25. Connellsville coal is back around \$3.75 as compared with \$3 a week ago, and steam grade from this field is rated at \$3.25 to \$3.50.

There is a disposition here to criticize the price of \$3.50 set up as a fair maximum for Southern coal at the May 31 Washington conference as too high. It is pointed out that prior to April 1 the prevailing prices were \$1.40 to \$1.50 and that only a week ago there were offerings at \$2.75 to \$2.85. Connellsville district producers, on the other hand, are not content with the suggested maximum and contend that the price should be \$4.50. It is asserted that coal cannot be mined profitably to-day at less than \$4.

Coal Production Increasing

UNIONTOWN, PA., June 3.—Reports for the eighth week of the coal strike in the Connellsville bituminous field show an increase of 1700 tons over the preceding week, the increased production for three weeks, following the break in the strike trend, being 6930 tons. An en masse break, predicted by many observers in the Klondike region for Wednesday and the latter half of this week, failed to materialize, although several hundred additional men are reported unofficially to have entered the mines during the period. Exact figures of the number of men returning to work are unavailable and will not be shown until the production figures are compiled at the close of the ninth week of the strike. However, the steady gain in production and the steady gain in number of men at work is noticeable to a large degree. A meeting of some 200 miners from Thompson and Tower Hill was held yesterday to devise ways and means of returning to work. This meeting was held in the open. Other similar meetings are being held throughout the region, and the attitude of the miners apparently has undergone a tremendous change during the past 10 days. A number of miner representatives were in Uniontown and other towns in the county during the week soliciting assistance, but they found that the strike is without public favor, no instances being reported where assistance of any material contribution was received.

The strike situation has also reached the stage of minor disturbances in the region, and officials believe that these sporadic outbreaks will be manifest, although extra precautions are being taken to cope with them. They have taken the form of dynamiting of house and property of men returning to work. The H. C. Frick

Coke Co., over the signature of its superintendent at Kyle, to-day advertised \$500 reward for information leading to the arrest and conviction of persons responsible for such dynamitings during the week in the vicinity of Fairchance.

Evictions are being continued at plants in the region, the largest number reported in any single day at any one plant being eight. Operators are beginning to weed out the men they deem undesirable. In some instances it is reported that those evicted have gone to other plants and are ready to go to work.

H. C. Frick Coke Co. has 21 of its 28 coking plants, rendered idle by the strike, again in partial operation, Mammoth, Phillips and York Run being added to the active list during the week.

Informal conferences between operators during the last half of the week have brought no change in the sentiment that July 1 will see a near normal production in the region. In one operator group this afternoon it was declared that reports had been received to the effect that considerable groups of men, following meetings on the subject, had decided to return to work on June 15.

Stocks Drawn Upon Heavily

WASHINGTON, June 6.—Observance of Memorial Day is given as the principal reason for a decrease in the production of coal during the ninth week of the strike, May 29-June 3. Returns received by the Geological Survey so far indicate an output of between 4,550,000 and 4,750,000 tons. Production of anthracite coal remains practically at zero. Some uneasiness is being shown over the situation because consumption now is estimated at approximately 8,500,000 tons per week or 3,000,000 tons in excess of output. The result is heavy drawing on accumulated stocks. Loading on Monday, May 29, were 15,082 cars, the largest for any Monday since the strike began, but on Memorial Day they dropped to 11,142 cars. They recovered promptly on Wednesday, only to decline again on Thursday, partly because of the occurrence of pay day. The Geological Survey states that it is significant that the cumulative production of coal, anthracite and bituminous, since the strike began now is some 30,000,000 tons short of what was produced during the corresponding period of the great strike of 1919. This situation has prompted reports of threatened shortages and slackened industry within a comparatively brief time.

No great change in the number of men on strike has yet occurred, according to the Survey. Production is increasing slowly in the Connellsville region, and more rapidly in southeastern Kentucky and Tennessee. In the union and open shop districts of West Virginia there is only a perceptible increase. In none of the strongly organized districts, however, has work been resumed and there are still thousands of miners on strike in the non-union districts of Pennsylvania. The accumulation of unbilled coal is declining. Consumers' stocks of both anthracite and bituminous coal are falling steadily but how much cannot be accurately stated for the present rate of consumption is not known definitely.

Shortage of Low-Priced Workers

YOUNGSTOWN, June 5.—Hot mill operators are beginning to feel the pinch of shortage of lower-priced workers, such as openers, matchers and doublers, as operating schedules expand and temperature climbs. While there has been as yet little interference with production for this reason, some projected expansion has been held in abeyance. Employment agents from other districts have come into the valleys recently seeking skilled operatives.

The New Departure Mfg. Co., Bristol, Conn., ball bearings, automobile parts, etc., is employing 3300 workmen, an increase of 800 within the past two months. It has a large amount of business on its books.

COMPLAINT ISSUED

Federal Trade Commission Will Investigate Bethlehem-Lackawanna Merger

WASHINGTON, June 6.—The Federal Trade Commission complaint issued Saturday and made public yesterday against the Bethlehem Steel Corporation and the Lackawanna Steel Co. in connection with the merger of these two interests means that the commission is to enter upon another long-drawn out investigation with regard to the steel industry. As is known, it already has under investigation the matter of the Pittsburgh basing point and the cost reporting case relating to 22 independent iron and steel companies.

The complaint just issued together with a report has been forwarded to the President and the Senate and is the result of the LaFollette resolution calling upon the commission and the Department of Justice to make an inquiry into proposed independent steel consolidations. The Department of Justice so far has taken no action further than to confer with steel officials of companies which were, or are, contemplating mergers. With regard to the proposed merger of the Midvale Steel & Ordnance Co., the Republic Iron & Steel Co. and the Inland Steel Co., the commission states that "The actions of these three companies have not so far advanced toward completion as to reveal the essential facts with the same precision and comprehensiveness as in the Bethlehem-Lackawanna case and the Federal Trade Commission therefore has not yet been able to reach a reason to believe either that the proposed three-company merger will or will not carry the same tendency and capacity as in the case of the Bethlehem-Lackawanna merger." It is stated that "the details of this plan are, however, being carefully followed and so soon as the commission is in possession of sufficient information it will make further report to the Senate as to the second of these proposed mergers." Details of the proposed Midvale-Republic Inland merger, have, however, been supplied to the commission by Attorney Thomas L. Chadbourne and it is assumed that the commission will make known its position regarding this proposed consolidation in the near future. The complaint in the Bethlehem-Lackawanna case is made under Section 5 of the Federal Trade Commission act and charges "that the Bethlehem Steel Corporation and the Lackawanna Steel Co. have been and are using unfair methods of competition in interstate commerce in violation of the provisions" of the section mentioned. Two merging interests are given notice that a hearing will be held in Washington by the commission beginning at 10.30 a. m. on July 24 when the respondents are to appear and show cause why an order should not be entered by the commission requiring them to cease and desist "from the violation of the law charged in this complaint." The complaint states that the Bethlehem Steel Corporation and Lackawanna Steel Co. with their subsidiaries now are in direct competition with each other and allege that the consolidation would have "a dangerous tendency unduly to hinder competition."

It is a source of speculation as to how much further the commission may go with regard to its investigation. By some it is believed that it will not confine itself merely to the proposed merging companies, but that it may attempt to involve the entire steel industry of the country in its ambitious program. Whether or not the Department of Justice will share actively in the undertaking or the investigation will be consolidated in order to avoid duplication remains to be seen, but it has been intimated that this course may be pursued.

Mr. Grace Welcomes Investigation

E. G. Grace, president of the Bethlehem Steel Corporation, confirms the statement from Washington that the Federal Trade Commission has requested the Bethlehem and Lackawanna companies to appear before the commission and state reasons why the acquisition by Bethlehem of the Lackawanna properties would not constitute a violation of the provisions of the Federal

Trade Commission act relating to unfair methods of competition.

Mr. Grace went on further to state that the transaction had been called to the attention of the Federal Trade Commission prior to the senatorial action requiring them to investigate it, and that in consultation with the commission, May 22, 1922, it was agreed that a brief should be submitted, setting forth the position of the two companies in respect to the transaction.

"We will welcome the fullest investigation," said Mr. Grace, "and believe that when the facts in the case are fully shown the purchase will be approved. We will shortly be ready for the hearing and hope that the commission will hear the case considerably in advance of the time named by it in its complaint."

LAST YEAR'S PRODUCTION

Sharp Decrease of Iron and Steel Compared with Preceding Year

Special statistical bulletin No. 3 of the American Iron and Steel Institute, which has just been issued, shows that the production of steel ingots and castings for 1921 amounted to 19,743,797 tons compared with 42,132,934 in 1920. The ingot production for 1921 was 19,184,084 tons and castings 559,713 tons. Production of merchant bars for 1921 was only 1,565,754 tons compared with 6,130,240 in 1920. Production of tin plate and terne plate for 1921 was 1,776,763,921 lb. compared with 3,218,177,730 lb. in 1920. The production of wrought pipe and boiler tubes for 1921 was 1,987,442 tons compared with 3,200,725 in 1920. Cast iron pipe for 1921 was 794,230 tons compared with 886,515 tons in 1920.

The accompanying table give the totals of various kinds of rolled iron and steel from 1917 to 1921, inclusive.

Years	Production of Rolled Iron and Steel			
	Iron and Steel Rails	Plates and Sheets	Wire Rods	Structural Shapes
1917.....	2,944,161	8,267,616	3,137,138	3,110,000
1918.....	2,540,892	8,799,135	2,562,390	2,849,969
1919.....	2,203,843	7,372,814	2,538,476	2,614,036
1920.....	2,604,116	9,337,680	3,136,907	3,306,748
1921.....	2,178,818	4,260,574	1,564,330	1,272,624

Reduction of Cotton Tie Rate Suspended

WASHINGTON, June 6.—Sharp competition between domestic and foreign producers of cotton ties, buckles and coverings has been given a temporary setback as the result of an order by the Interstate Commerce Commission suspending from June 5 to Oct. 3 proposed heavy reductions in railroad rates on these products from Galveston, Tex., to Memphis, Tenn. It is proposed in the suspended tariffs to reduce the rate on imports of cotton ties and buckles from Galveston to Memphis from \$1.18 to 26c. per 100-lb. and on cotton bale coverings from \$1.18 to 36.5c. The decided cuts proposed are said to have grown out of water and port competition and the desire of the carriers serving rival ports to obtain what they consider a fair share of the business.

Current rates are based on the fifth class, prescribed as a result of hearings followed by an order of the commission denying fourth section relief. The immediate cause of the proposed rates is the fact that there is a commodity rate of 26c. on the products involved from New Orleans to Memphis, when for beyond. Galveston lines desired to participate in the transportation of imported cotton ties and buckles on terms of equality and on cotton bale coverings at a rate of 10c. over New Orleans. Protests were made by the Carnegie Steel Co., and Warren, Jones & Gratz, St. Louis.

Sickness frequency among industrial employees has been investigated by the United States Public Health Service and an eight-page pamphlet may be obtained by applying to the Government Printing Office, Washington, asking for reprint No. 721 from the Public Health Reports. The study covers the morbidity among a group of wage earners for a period of eighteen months, ended with June, 1921.

British Iron and Steel Market

America Buying Less Scotch Foundry Iron—Improved Export Inquiry—Tin Plate Firmer —Continental Quotations (By Cable)

LONDON, ENGLAND, June 6.

Prospects favor an early settlement of the labor dispute in the engineering trades.

Pig iron is quiet, owing to the holidays. There have been further small sales of Scotch foundry iron to America, but inquiries are diminishing. Two Cleveland hematite furnaces have been blown out. The furnaces of all kinds now operating number 25.

Home trade demand in finished iron and steel is improving. Contracts have been placed for 22,000 tons of steel and 50,000 tons of iron segments for New London underground tubes, deliveries being spread over 18 months.

Demand for Continental steel is increasing. Hong-kong is buying merchant bars and wire nails. India is buying merchant bars and plates. Sheets and joists (structural steel) have been sold to South America and Roumania has bought wire rods. Belgian $\frac{1}{8}$ -in. plates are quoted at £9 5s. (1.86c. per lb.) f.o.b. Continental prices are given in the table.

Tin plate is steady. Some works are asking up to 20s. (\$4.50) basis, f.o.b., but other sellers are still accepting 19½s. (\$4.39) f.o.b. for prompt delivery, and even less. There is some talk of a revival of the tin plate Conference on pre-war lines. America is trying to book orders here for export, especially to South America, but Wales is securing a fair business; 350,000 boxes of oil sizes have been sold to the East. Quarters are done at 20s. f.o.b.

Galvanized sheets are easier, on the anxiety of certain makers to secure orders, but there is only a small demand.

South America has bought small lines of black sheets; other markets are quiet.

Sales of Pig Iron to America—Railroad Rates Reduced—Resale of Japan's Purchases

LONDON, May 18.—The dispute in the engineering trades drags on, with the result that there is no improvement in the home buying of iron and steel. In fact, the trade is stagnant. Pig iron producers, however, are in a slightly more favorable position than the steel makers. Quite a fair amount of export business has been moving in the former during the past three weeks, and latterly has been augmented by very substantial bookings both of pig iron and ferromanganese for America, and in a lesser degree for the Continent. This business has come as a blessing, as the ironmasters would otherwise be compelled to cut down output. As it is the Cleveland foundry output is limited, and so it is possible that there will be a shortage of this material later. It might be thought, therefore, that consumers would take the opportunity of buying a little, even without special need, rather than wait until later on, when possibly they will find they will have to pay more money, but at the present time, when their plants are either closed or only working half time, locking up capital in material is a risky thing.

Railroad rates have recently been reduced but it does not seem as though this will materially assist in getting pig iron prices down. In the meantime quotations are well held, with No. 3 Cleveland G.M.B. quoted at 90s. for either home or export, and East Coast hematite selling at 95s. to 96s. for home, and possibly about 1s. more for export.

Trade in finished iron and steel is also bad, but makers are not compensated by any adequate export business. Buying by home consumers is, of course, at a

We quote per gross ton, except where otherwise stated, f.o.b. maker's works, with American equivalent figured at \$4.50 per £1, as follows:

Durham coke, delivered	£1 7½s. to £1 8s.	\$6.19 to \$6.30
Cleveland No. 1 foundry	4 15	21.38
Cleveland No. 3 foundry	4 10	20.25
Cleveland No. 4 foundry	4 7½	19.69
Cleveland No. 4 forge	4 2½ to 4 5	18.56 to 19.12
Cleveland basic	4 10	20.25
East Coast mixed	4 15 to 4 16	21.38 to 21.60
Ferromanganese	15 0	67.50
Ferromanganese*	14 10 to 14 15	65.25 to 66.34
Rails, 60 lb. and up	7 17½ to 9 10	35.44 to 42.75
Billets	7 0 to 8 0	31.50 to 36.00
Sheet and tin plate bars,		
Welsh	7 7½	33.19
Tin plates, base box	0 19½ to 0 19¾	4.39 to 4.45
Ship plates	9 5 to 10 10	1.86 to 2.11
Boiler plates	13 10 to 14 0	2.71 to 2.81
Tees	9 10 to 11 0	1.91 to 2.21
Channels	8 15 to 10 5	1.76 to 2.06
Beams	8 10 to 10 0	1.71 to 2.01
Round bars, $\frac{3}{4}$ to 3 in.	9 10 to 10 10	1.91 to 2.11
Galvanized sheets, 24 g.	15 15 to 16 0	3.16 to 3.21
Black sheets	12 0 to 12 5	2.41 to 2.46
Steel hoops	12 0 & 12 5*	2.41 & 2.46*
Cold rolled steel strip,		
20 g.	23 2½	4.65
Cotton ties, Indian specifications	15 0	3.01

*Export price.

Continental Prices, All F.O.B. Channel Ports. Delivery as Specified

No. 3 foundry pig iron:		
Belgium, June	£4 12½s. to £4 15s.	\$20.81 to \$21.38
Luxemburg, June	4 12½ to 4 15	20.81 to 21.38
France, June	4 12½ to 4 15	20.81 to 21.38
Basic pig iron:		
Luxemburg, June	4 6 to 4 7	19.35 to 19.58
Billets:		
Luxemburg, June	6 5	28.13
Lorraine, June	6 5	28.13
Wire nails (basis):		
Germany, August	0 14½	3.26
Wire rods, 5 mm. (0.2 in.):		
Belgium, June, July	8 7½	37.69
Merchant bars:		
Belgium, June, July	7 13½ to 8 0	1.54 to 1.61
Luxemb'g, July, Aug.	8 0 and up	1.61 and up
Germany, July, Aug.	8 7½	1.68
France, July	8 5 to 8 10	1.66 to 1.71
Joists (beams):		
France, July, Aug.	7 7½ to 8 0	1.48 to 1.61
Belgium, June, July	7 7½ to 7 15	1.48 to 1.56
Luxemb'g, June, July	7 15	1.56
Belgium, June, July	7 7½ to 7 15	1.48 to 1.56
3/16-in. plates:		
Germany, July, Aug.	9 5	1.86
Belgium, June, July	7 17½ to 8 0	1.58 to 1.61
No. 8 gage wire:		
Belgium, July, Aug.	14 10	2.91

very low ebb, if it exists at all, and while there is a moderate amount of demand for material for shipment overseas, consumers will not pay the prices asked, except in the case of urgent need, while makers profess to be losing on every ton they sell at to-day's prices. It can therefore be seen that the outlook is far from bright, and it will need some very substantial buying all round to put the trade on anything like its feet.

Not so much has been heard lately of keen continental competition, even though prices on that side are lower, but the position seems to be that continental output is only about one-third of capacity, and several works, particularly in Belgium, are only in a position to execute orders for one kind of material.

Lately we have heard that Japan is endeavoring to re-sell various parcels of continental material, and if these get on the open market, there can be but one result. Belgian producers have started price cutting to get orders already without much success, but France and Luxemburg, on the other hand, seem to be hardening, while Germany, as a whole, is quite out of it, if only on the score of very far forward deliveries.

With the iron and steel trades in such a depressed state, it is encouraging to make a few remarks about the coal trade. Buying has been quite active of late and the exports for the first four months of this year have amounted to over 17,000,000 tons, which compares with 22,000,000 tons for the same period in 1914. Germany is taking about half her pre-war purchases, but within the last few days substantial orders have been placed.

The cost of living is steadily going down, and according to the latest reports, the end of April saw the lowest level reached since October, 1917, being 81 points above that of July, 1914.

April Structural Sales Near Capacity

Orders for fabricated structural steel placed during April were almost equal to the capacity of fabricating firms, according to reports made to the Department of Commerce by firms comprising two-thirds of the fabricating capacity of the United States. Sales reported during April amounted to 115,247 tons by 75 firms having a capacity of 116,918 tons, or at the rate of 99 per cent of capacity.

At this rate, the total sales throughout the United States, based on a total capacity of 180,000 tons, were 177,600 tons in April. This compares with 139,300 tons reported for March by the Bridge Builders and Structural Society, based on reports of 64 firms showing sales at 77 per cent of capacity.

The total for April is a record, the previous high volume of April business in the years for which there are figures, or since 1911, being 151,800 tons in April, 1914. The average volume of April contracting for the preceding decade is 102,700 tons.

Officials of the Bureau of Census, Department of Commerce, are gratified at the way in which steel fabricators are reporting to the bureau in connection with its efforts to get complete data showing structural steel awards. There are still a few fabricators, including one or two large concerns, which have not as yet reported to the bureau. The bureau is performing the work formerly done by the Bridge Builders and Structural Society and will publish the figures monthly.

Freight Rates on Southern Pig Iron

Although the recent horizontal freight reductions announced by the Interstate Commerce Commission will probably not be changed for some time, hopes are still entertained by both producers and consumers of Southern pig iron for a further cut in rates. The present rate on pig iron from Birmingham, Ala., to Chicago is \$6.67 per gross ton, and under the new tariffs to become effective July 1, will be \$6. Under Submittal No. 5748 to the Southern Freight Rate Committee, Atlanta, Ga., it was suggested that this rate be reduced to \$4.82 per gross ton. This submittal was on the docket of the committee for April 25, but no conclusion in the matter has yet been reached, and the general question of pig iron rates from the South is now receiving consideration at the hands of the executive officers of the Southern and Northern railroads. The submittal, which was initiated by shippers, sets up as a reason for the changes the claim of Southern pig iron producers that they have not been able for some time to make shipments to any appreciable extent to St. Louis, Chicago, and Western points, because the existing freight rates from the Birmingham district have been too high as compared with those from Chicago. The proposed rates from Birmingham to other points than Chicago, as set forth in the submittal, are \$4.22 per gross ton to St. Louis, \$4.72 per gross ton to Peoria, Ill., \$4.62 to Springfield, Ill., \$5.66 to Milwaukee, Wis., \$7.15 to Kansas City, Mo., \$7.88 to Omaha, Neb., and \$9.04 to Beatrice and Lincoln, Neb. While favorable action on this submittal may be taken by railroad officers, it is the opinion of the trade and such action cannot be expected in the near future.

Urgent Demand for Sheets

YOUNGSTOWN, June 5.—Demand for ordinary grades of sheets is being maintained, while requirements for full finished are becoming more insistent. Automobile and body interests have lately urged that shipping dates be advanced and have been calling upon producers in an effort to enlarge specifications. The executive of one of the important automobile body building concerns last week personally visited a number of mills in an endeavor to obtain larger supplies.

A district producer recently established connections with an important motor car interest which has hitherto filled its requirements elsewhere. An example of the situation in this market is found in the offer of a warehouse interest, made to a Valley pro-

ducer last week, to pay a \$10 premium above a 4.75c price for No. 22 gage auto body stock, for 500 tons.

While premiers are undoubtedly being accepted by some interests, conservative makers are disinclined to take business on such a basis, preferring to supply the demands of their regular customers and to hold prices within reasonable bounds.

Two Valley independents are accepting tonnage with a July delivery date specified, but not beyond.

Makers of rolling mill equipment report a large prospective demand, expected to materialize as earnings improve.

Exports of Machinery in April

On page 1538 of THE IRON AGE, June 1, it was shown that iron and steel exports from the United States in April registered a decrease of about 10,000 tons below the March figure, while exports of machinery, exclusive of vehicles, showed a reduction of about \$740,000 below the March figure. Details of the machinery exports are shown in the appended table.

It will be noted that the April exports of \$19,191,148 may be compared with \$19,932,526 in March and with \$36,392,316 in April, 1921. The falling off in exports for the 10-month period, including April, was still greater than the drop in the figures for the month of April alone, as compared with last year, for the present ten months showed a total of only \$203,012,552, compared with \$529,912,700 last year. The falling off in April was thus 47.3 per cent as compared with last year, while the decrease in the 10-month period was 61.7 per cent.

MACHINERY EXPORTS
By Value

	April, 1921	April, 1922	Ten Months Ending	
			April, 1921	April, 1922
Locomotives	\$1,922,487	\$197,654	\$39,665,768	\$17,072,585
Other Steam Engines	149,203	140,379	3,016,446	1,460,375
Boilers	384,068	100,166	8,447,937	1,296,523
Accessories and Parts	4,076,263	309,700	*8,588,781	*834,938
Automobile Engines	223,311	773,315	2,288,174	2,508,040
Other Internal Combustion Engines	428,968	229,424	5,198,345	1,488,566
Accessories and Parts for All Other Parts of Engines	1,082,409	274,904	18,883,816	*879,596
Complete Tractors, except Agricultural	39,390	5,314	10,638,264	254,845
Electric Locomotives	31,499		294,471	11,339,190
Other Electric Machinery and Apparatus	2,485,766	736,846	31,773,664	13,897,083
Excavating Machinery	275,617		2,283,673	710,339
Concrete Mixers	43,332	81,462	957,908	326,395
Road Making Machinery	111,741		990,741	1414,539
Elevators and Elevator Machinery	167,685		1,779,477	1552,821
Oil Well Machinery	911,630		9,733,364	13,146,283
Pumps	1,356,725	809,303	15,232,928	4,654,545
Lathes	335,614	45,608	4,974,715	894,716
Boring and Drilling Machines		25,280		*197,028
Planers, Shapers and Slotters		25,685		*78,151
Bending and Power Presses		644		*191,988
Gear Cutters		3,307		*16,272
Milling Machines		17,591		*81,886
Sawing Machines		1,329		*17,660
Thread Cutting and Screw Machines		15,229		*53,981
Punching and Shearing Machines		8,700		*63,555
Power Hammers		5,723		*39,639
Rolling Machines		221		*7,649
Wire-drawing Machines		808		*1,886
Polishing and Burnishing Machines		2,879		*8,711
Sharpening and Grinding Machines	84,946	67,804	2,433,816	680,107
Other Metal Working Machinery and Parts of	1,634,862	379,434	24,267,705	5,827,144
Textile Machinery	1,475,159	1,598,124	21,081,015	14,562,895
Sewing Machines	564,773	420,988	10,164,499	4,532,097
Shoe Machinery	146,674	53,393	2,602,436	835,746
Flour-Mill and Gristmill Machinery	122,605	201,960	1,932,467	858,659
Sugar-Mill Machinery	1,208,043	80,940	26,586,071	3,713,461
Paper and Pulp Mill Machinery	232,761		3,295,684	11,376,074
Sawmill Machinery	107,364	25,007	1,247,383	512,758
Other Woodworking Machinery	170,816	110,063	3,531,570	893,712
Refrigerating and Ice Making Machinery	197,204	89,611	3,216,282	1,522,823
Air Compressors	306,274	166,938	5,177,558	1,464,129
Typewriters	727,374	887,706	17,386,524	8,246,298
Power Laundry Machinery	116,665	24,540	1,300,466	441,186
Textile Printing Machines	308,957	458,384	4,105,966	2,613,656
Printing Presses	826,923	372,691	9,400,495	4,200,514
Agricultural Machinery and Implements	4,081,333	1,918,109	44,806,325	15,646,546
All Other Machinery and Parts	10,033,866	8,840,025	173,827,866	79,343,367
Total	\$36,392,316	\$19,191,148	\$529,912,700	\$203,012,552

*—January 1 to April 30, 1922.
†—July 1 to December 31, 1921.

Jones & Laughlin River Shipments

One of the interesting sidelights of the movement of steel products from Pittsburgh mills to Ohio and Mississippi River points by river barges is the employment of the barges on return trips in bringing back to Pittsburgh materials for use in the steel mills. The steamer Aliquippa, of the fleet of the Jones & Laughlin Steel Co., which arrived at Pittsburgh May 30 from Memphis, towed seven barges, two of which were loaded with fluorspar and one with lumber, all for the use of the Jones & Laughlin Steel Co. The river delivery service of the company is not a commercial venture, and in employing barges on return trips only such materials as it uses itself are carried.

Bringing fluorspar to this city by barge opens the way, however, for the commercial river transportation companies to do the steel mills of the Pittsburgh district a distinct service and save them much money. The principal fluorspar mines of the country, and those serving the steel plants from Chicago east, are located near the Mississippi River in Kentucky and Illinois. The rail freight charge from Kentucky mines to Pittsburgh, common rate points, is \$5.70 a ton, and from the Illinois mines \$6. This compares with an estimated charge of about \$3 to \$3.50 per ton by river barge. Reshipment by rail from Pittsburgh could be employed to the benefit of steel companies outside the Pittsburgh district.

Incidentally the trip of the Aliquippa was a remarkably quick one. It delivered at Memphis 3000 tons of steel products, mostly tubular goods for the South and Southwest in just 8 days from the time it left Pittsburgh and made the return trip in 11 days. The steamer was gone 22 days in all, but there were layovers of three days. Company officials did not figure the steamer would get back to Pittsburgh before June 5. It is claimed that if the same tonnage was moved by rail delivery it would have taken much more than eight days.

Cletrac Makers Expand to Make Motor Cars

The Cleveland Tractor Co., maker of Cletracs, will be reorganized as the Allyne-Zeder Motors Co. to manufacture and market a six-cylinder car being designed by F. M. Zeder, formerly chief engineer of the Willys Corporation and the Studebaker Corporation. The reorganization will be brought about by adding approximately \$5,000,000 of new capital to the present assets of the Cleveland Tractor Co., resulting in a corporation with a capital of \$10,000,000 of preferred stock and 200,000 shares of no par common stock. It is not expected that there will be a public offering of the new stock.

A new corporation subsidiary to the Allyne-Zeder Motors Co. will be organized under the name of the Cleveland Tractor Co. and will continue the marketing of Cletracs through its present distributors and dealers. A new 1-ton truck embodying advanced details in design, engineered by Rollin H. White, will be added to the Cletrac line in the near future. E. E. Allyne, second largest stockholder in the tractor company, whose name is included in that of the new company, is a director of the Aluminum Manufacturers, Inc.

The Allyne-Zeder company will bring back to the automotive industry two members of the Studebaker family who have been prime movers in the reorganization. They are Clement Studebaker, Jr., and his brother, Col. George M. Studebaker. Both formerly were directors of the Studebaker Corporation and they are the controlling factors in the Citizens National Bank of South Bend. Clement Studebaker will be chairman of the board and his brother vice-president. Rollin H. White, president of the Cleveland Tractor Co. and a director of the Aluminum Manufacturers, Inc., will be president of the new corporation.

The other officers will be R. T. Hodgkins, general sales manager of the Cleveland Tractor Co., vice-president; A. F. Knobloch, works manager of the Cleveland Tractor Co., vice-president and works manager; F. M. Zeder, vice-president and chief engineer; C. D. Fleming, treasurer of the Cleveland Tractor Co., treasurer; E. B. Wilson, formerly sales manager of the Willys Corpo-

ration, general motor car sales manager; O. R. Skelton, formerly in the engineering departments of the Willys and Studebaker corporations and the Packard company, assistant chief engineer; Carl Breer, formerly in the engineering departments of the Willys and Studebaker corporations, assistant chief engineer. J. O. Hahn, formerly branch manager in several cities for the Studebaker Corporation, also will be associated with the company.

The productive capacity of the factory will be 50 automobiles and 50 tractors a day. To provide for this increased space an expenditure of about \$1,250,000 will be necessary.

Will Sell Willys Plant

Following an order issued by Judge Joseph L. Bodine in the Federal Court at Trenton, N. J., Clifford I. Voorhees, James Kerney and Clement O. Mininger, receivers for the Willys Corporation, have directed Charles S. Gerth's Realty Experts to sell the Elizabeth, N. J., works of the corporation at public auction Friday, June 9, at 11 a. m. This action was taken to satisfy demands of creditors.

At the auction separate bids will be asked for close to \$2,000,000 worth of machinery and tools, land worth more than \$100,000 and some valuable garage property.

The conditions of the auction provide that the Willys Corporation property be sold in four separate parcels, including land, buildings, appurtenances and fixtures, machinery, material and supplies.

Newton Steel Co.'s Addition

Excavation for foundations has been started for the six-mill addition to the 10-mill sheet plant at Newton Falls, Ohio, of the Newton Steel Co., Youngstown. The contract for the structural steel and its erection, involving 1000 tons, has been awarded the McClintic-Marshall Co., Pittsburgh. Stockholders approved plans for the extension and additional financing at a special meeting May 31. The company will issue \$750,000 of bonds, bearing 7 per cent interest, which will carry a conversion privilege into preferred stock. In order to provide additional preferred, shareholders approved an increase in this issue in the amount of \$1,000,000, excess above the \$750,000 to provide for any future financing that may be advisable. The bonds have been underwritten by the Union Trust Co., Cleveland, and will be offered for public subscription.

The new mills will be installed in an extension to the main plant building. A new warehouse is to be built and finishing equipment will be installed in the present warehouse. In addition the company will erect a plant office building at Newton Falls to house its operating force.

Will Sell 229 Engines

At public auction in the offices of the United States Shipping Board Emergency Fleet Corporation at Nineteenth and B streets, N. W., Washington, commencing at 10 o'clock a. m., Monday, June 19, 229 unassembled 1400-hp. triple expansion marine engines will be disposed of.

These engines are located at warehouses of the United States Shipping Board Emergency Fleet Corporation at the following places: Alameda, Cal.; Hog Island, Pa.; Beaumont, Tex.; New Orleans, La.; Corliss, Wis.; Tacoma, Wash.; Erie, Pa. St. Johns, Portland, Ore.

Work has been started on the rebuilding and modernizing of the furnace of the Sharpsville Furnace Co., Sharpsville, Pa., owned and operated by the Allen S. Davison Co., Oliver Building, Pittsburgh. Besides the enlargement of the stack permitting the doubling of present capacity, a skip hoist is to be erected, thus changing the furnace over from a hand, to a mechanically, charged one. New ore bins are to be installed and a new cast house is to be built. It is expected that the work will be completed and the furnace ready to operate about Oct. 1.

To Organize an American Construction Council

A general invitation has been issued by the temporary directing committee of the American Construction Council to all persons likely to be interested to attend the organizing meeting of that body in Washington June 19 and 20. The step contemplates bringing together for co-operation in behalf of the industry and of the public all the elements of construction activity—engineers, architects, labor, the contractors, the manufacturers and dealers, and the financial interests. Details of the plan are set forth in a comprehensive pamphlet, procurable from the temporary office, 1053 Munsey Building, Washington. The meeting will be held in the Washington Hotel. Secretary of Commerce Hoover will preside.

Office Managers Meet

The third annual conference of the National Association of Office Managers was held in Washington May 18 to 20 inclusive. Representatives of many of the largest concerns in the country met together to discuss principles of office management and to exchange ideas looking to the more economical and efficient operation of large offices. One day of the conference was set aside for a series of round table discussions on such subjects as "Tests for Clerical Employees," "Office Budget Program," "Determination of Compensation by Results," "Procedure for Establishing Standard Practice Routine and Office Manuals," "Mechanical Appliances in the Office" and "Office Service Departments." This material will be included in the published proceedings of the conference.

The association was formed a little over three years ago. The officers are: President, F. L. Rowland, Gilbert & Barker Mfg. Co., Springfield, Mass.; first vice-president, G. R. Hulverson, Burroughs Adding Machine Co., Detroit; secretary, G. S. Childs, Alexander Hamilton Institute, Astor Place, New York; treasurer, C. W. Kirkpatrick, Fisk Rubber Co.

Brass Manufacturers Discuss Standardization

The National Association of Brass Manufacturers met at the Old Colony Club in the Hotel Tuller, Detroit, May 23, 24 and 25. Among the subjects discussed was standardization. It was concluded that the standard uniform size of catalogs should be 7½ in. x 10½ in., the measurements being generally used. The representative of the association at a recent meeting called by Secretary Hoover of trade associations reported and also National Councillor Adolph Mueller who attended the meeting of the United States Chamber of Commerce of the United States. E. C. Eckhouse, who represented the association at the meeting of the National Pipe and Supplies Association in Pittsburgh, also read a report. A letter from H. A. Wheeler of the Chamber of Commerce of the United States, advised that the cornerstone of the temple to American business had been laid and that it would be erected on the open shop plan. The Association authorized a donation of \$500 toward this temple.

A poll of the meeting indicated that business for the first few months of this year, as compared with last, showed an increase of 67 1/5 per cent.

The next meeting of the Association will be at the Old Colony Club in Detroit, Sept. 6, 7 and 8.

Machinists' Plan Declared Impracticable

WASHINGTON, June 6.—Although the Administration previously has indicated its disapproval of the plan, the International Association of Machinists has renewed its agitation before Congress to permit navy yards and arsenals to fill Government requirements of numerous kinds, not only for munitions of war, but for paint, rope, electrical equipment, clothing, steel, furniture, engines, motor trucks, road machinery, dredging machinery, boilers, cutlery, flour bags, brief cases, harness and "a thousand other things," as the association puts it.

The machinists' plan was presented by O. S. Beyer, Jr., before the House Committee on Naval Affairs last Wednesday in connection with the Hull bill which provides for putting the proposal into effect. Despite the claims of the Machinists' Union, the plan is believed to be considered by the Administration and general sentiment in Congress to be entirely impracticable and not at all likely to be adopted. As a political bill, however, it has some supporters in Congress who are capitalizing the suggestion for what they think will be good effect among organized workers.

Southern Foundrymen to Meet in Savannah

The fifth annual convention of the Southern Metal Trades Association will meet in Savannah, Ga., June 19 and 20. The opening session will begin at 1.30 p. m., Monday, at the Savannah Hotel. Among the papers to be presented are "Signs of the Times," by T. M. Cunningham, Jr., president Chatham Savings & Loan Co., Savannah, Ga., and "Side Lights on Cupola Practice," by Patrick Dwyer, engineering editor, *Foundry*, Cleveland. Addresses will be made by President G. F. Meehan, Chattanooga, and Horace Lanier, president West Point Iron Works, West Point, Ga., and reports will be presented by Secretary W. E. Dunn, Jr., and Treasurer J. W. Moore.

Industrial Engineers' Meeting

The Chicago Chapter of the Society of Industrial Engineers will hold the sixth and last dinner meeting of the season of the series on the stabilization of industry. Arthur Andersen of Arthur Andersen & Co., certified public accountants and industrial engineers, Chicago, will deliver an address on financial stabilization, in which he will outline the place of promotion and financing as organizing forces in industry, and explain the effect of constructive and destructive finance and promotion upon stabilization. E. W. Thomas, vice-president, A. C. Allyn & Co., investment bankers, Chicago, will preside. The meeting will be held at 6:30 p. m., June 13, at the Auditorium Hotel, Chicago.

The annual dinner and meeting of the Cincinnati Chapter of the American Society for Steel Treating will be held on June 8 at the Ohio Mechanics Institute. Election of officers for the coming year will take place. J. C. Spence, general works manager of the Grinding Machine Department of the Norton Company, will present a paper on "The Grinding of Steel," and Mr. Norton, of the same company, will deliver an address on "Grinding in General."

C. A. McCune, sales engineer, Page Steel & Wire Co., Monessen, Pa., was the speaker at the regular monthly meeting of Pittsburgh Chapter, American Society for Steel Treating, at the Bureau of Mines building, Pittsburgh, Tuesday evening, June 6. His subject was "Manufacture of Iron Wire," illustrated by a four-reel motion picture. This was the last meeting of the chapter until next September.

COMING MEETINGS

June

American Foundrymen's Association. June 6 to 9. Annual meeting and exhibition. Rochester, N. Y. Secretary, C. E. Hoyt, 140 South Dearborn Street, Chicago.

First Annual Industrial Advertising Conference. Milwaukee, June 11 to 15, inclusive. Keith J. Evans, Joseph T. Ryerson & Sons, Sixteenth and Rockwell Streets, Chicago, chairman of the conference.

American Railway Association. June 14 to 21. Annual meeting, Atlantic City, N. J. (Formerly the Master Car Builders and Association of Master Mechanics.)

American Society for Testing Materials. June 26 to 29. Annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J. Secretary, C. L. Warwick, 1315 Spruce Street, Philadelphia.

SAN FRANCISCO INDUSTRIES

Metal Working an Important Factor—New Equipment Needed

SAN FRANCISCO, June 1.—“Payrolls are what make for improvement in banks, stores, buildings, homes, education and culture, and manufacturing metal trades business provides the steadiest and biggest per annum payrolls of any industry.”

This statement of the importance of the metal trades industry in San Francisco's economic life is made by Fred Metcalf, commissioner of the California Metal Trades, in a paper on this subject prepared for the San Francisco Chamber of Commerce. He says:

“The recently completed industrial survey made by the research department of the San Francisco Chamber of Commerce was the first definite and planned attempt at such local inventory, and while it was probably incomplete because of the newness of the idea, it showed very concisely and encouragingly the principal sources of the city's income.

“The reports compiled were for 1920. With only 380 metal trades firms reporting, they showed this group of industry at the head of the list or very close to the top in point of payrolls, number of men employed and value of plant equipment. The totals make impressive reading for business men. The \$28,349,763 paid to the 21,816 workmen in wages was either spent here in the stores or for homes or deposited in savings banks. A good part of the \$137,281,180, representing value of the products was in local supply houses and by them put into circulation on their payrolls.

“The sum of \$50,844,175 represents plant and equipment, and is ready to enter the manufacturing field and make articles that can be sold in competition with the East, Middle West, Northwest and Southern California.

“A large part of our machine shop equipment here is up to date, as it was installed during the war, but we need more machinery in some other trades and more automatic machinery for quantity production, and we must adopt Eastern operating conditions.

“Briefly summarized the metal trades industry of the San Francisco bay district is to-day equipped to handle practically everything that is required in their line.

Five Shipyards

“There are five shipyards, equipped with building slips to accommodate from the smallest vessels up to the largest. The largest drydock on the Pacific Coast is at Hunter's Point where the monster super-dreadnoughts of the navy are docked; two sectional floating docks capable of handling any vessel up to 12,000 tons or three or four two to three-ton vessels at one time.

“There are six marine ways that will handle from the smallest boat up to a 5000-ton ship, and in addition eight ways that handle tugs, barges, launches, scows and such smaller boats.

“All of the six larger yards are equipped to do machine and boiler work, and the three largest have fully equipped machine and boiler shops to handle jobs of any nature and size. In addition to these yards there are about 40 firms which maintain shops and equipment for handling ship repair and general jobbing work.

Numerous Foundries

“There are 45 foundries, both iron and brass. They can from the smallest to the largest make anything from small intricate work to the largest that have ever been required here.

“Five steel casting plants operate, the largest of which are equipped to make any size casting required, and the other equipped to make anything down to the smallest. Three firms operate open-hearth furnaces and rolling mills, and there are in addition several other mills and structural iron works.

“Diesel, semi-Diesel and gas engines are now manufactured in eight plants, and tractors, trucks and autos in five plants.

“Forgings, from the largest to the smallest, are

made in 14 shops, coppersmith work of all kinds in nine shops, marine sheet metal work and steamfittings in 12 shops, and wood pattern making in some 25 shops.

“Mining machinery, pumps, pulleys and conveyors, refrigerating equipment, overhead cranes, hoisting machinery, boilers, tanks, compressors, canning machinery, hydraulic and electric presses, tools, gears, saws, bolts, nuts, elevators, heating plants, oil burners, dredging equipment, cars and running gear, filters, water wheels, and other lines are specialized in by approximately 35 other companies.

Business Improvement in Canada

TORONTO, June 5.—Signs of a distinct business revival are strongly occurring, more particularly so in the key industries. For a considerable time the iron and steel industries of Canada have experienced a marked depression, but are now coming back very rapidly. The development and expansion in the force of the John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont., provide a marked demonstration of the rapid growth of improved business conditions. The demand for the output of the John Morrow Screw & Nut Co. and its subsidiaries has been so increased that almost its entire force is now working on the 50-hour week basis and additional help has been employed. The Ingersoll File Co., a subsidiary, is also enjoying a period of great activity since the first of the year and at the present time 75 men are employed on full time, with occasional overtime. The business of the company is so extended from coast to coast that the company has decided to establish its executive and sales office in Toronto, Ont. J. F. Mackay, vice-president and general manager, will be located in Toronto, but will continue to look after the company's affairs at Ingersoll.

The Brantford, Ont., plant of the Massey-Harris Co. will resume operations for a limited period and about 500 men will be employed. The implements to be manufactured are harvesting goods such as binders, mowers, etc. No special orders have been received, but they will be supplied to the branches for the home trade in the hope that a demand will shortly spring up. The Toronto plant has been operating at about 50 per cent capacity and will continue so until July. While there has been some improvement in the demand for agricultural implements of late, it has not been on a large scale.

Birmingham Plant Activities

BIRMINGHAM, ALA., June 6—The Alabama By-Products Co., with 50 Koppers ovens at Tarrant City, Birmingham, will at once increase capacity 50 per cent by installing 25 additional ovens. Morris Bush, president of the company, makes the formal announcement and says work is to be completed within four to five months.

The Virginia Bridge & Iron Co., with plants at Memphis and Roanoke, has begun operations in the plant acquired in Birmingham. This plant was built by the Birmingham Steel Corporation and sold to the new owners at Federal court sale. A car repair department is to be added later to the usual steel fabricating operations.

Tod blast furnace of the Brier Hill Steel Co., Youngstown, Ohio, was blown in June 3, following a period of idleness since Oct. 18, 1920. It has a rated capacity of 400 tons daily. All three of the company's furnaces are now on the active list, and it is protected on its fuel requirements for at least 60 days on coal now in its yards. The addition increases the number of active blast furnaces in the Youngstown district to 22, of 47; of which 15, out of 28, are pouring in the Mahoning Valley.

Among the list of members of the National Fabricators' Association, published in THE IRON AGE of May 18, the location of the Chesapeake Iron Works was given as Baltimore, Ohio. It should have been Baltimore, Md.

OUR STEEL EXPORTS TO JAPAN

70 Per Cent of Plates and Sheets, Rails, Tin Plate and Pipe Furnished by United States

Figures published by the Department of Commerce, showing the quantity of steel of different characteristics exported by the United States to Japan in the year 1921, may be compared with the total imports of steel by Japan, also published by the department, but obtained from Japanese sources. As the classifications differ considerably, direct comparison of items cannot be made in all cases. However, enough of the important items can be compared back and forth to give a good indication as to the extent to which Japan's imports of iron and steel were furnished by the United States. The figures published by the Japanese Government as to countries of origin are not conclusive. As they credit imports to the countries from which the ship sailed, American exports through Vancouver would be credited to Canada, although the originating point was in the United States.

Our table shows the various items arranged in order of volume of exports. A sub-total is given of finished steel and a total of all iron and steel. The Japanese import figures include also, in the grand total, a considerable quantity of scrap, a large tonnage of iron ore and small quantities of ferroalloys. These have been omitted from our table because they are not covered under the heading of exports from the United States. It will be noted that only an infinitesimal part of the pig iron imported by Japan comes from the United States; less than one ton in each 2000 tons. In finished steel, however, the United States furnished 59.1 per cent of the total imported by Japan. More than 70 per cent of the Japanese imports of black steel sheets and plates, steel rails, tin plate and wrought pipe and fittings went from the United States.

Because of the lack of co-ordination between the classifications used by the two governments, some of the figures and percentages shown may not be wholly representative. Thus, the figure of more than 20,000 tons of material reported by Japan as having been imported for construction of buildings, bridges, vessels, docks, etc., undoubtedly includes large quantities of steel plate and structural steel. The Japanese classification makes it impossible to segregate these items into the proper places in our table. Consequently, to that extent, the percentages shown for United States ex-

ports to Japan of plates and sheets and of structural shapes are higher than the actual figures should be. In other cases, the Japanese figure covers two or three of the American classes and the percentage is figured out on the group rather than on any single item. Thus, the Japanese figure for black sheets and steel plates (including also iron sheets and plates and ship and tank plates) is compared with the sum of four figures in the American column. Similarly, the figure shown opposite structural iron and steel includes also iron and steel bars. With this explanation the table ought to be self-evident.

Another possible inaccuracy exists in the fact that exports of the United States in December, not reaching Japan until January, would be reported in one year by the United States and in the following year by Japan. It may be assumed, however, that errors due to this cause will be automatically taken care of by the fact that, as similar conditions exist at both the beginning and the end of each year, they balance each other.

Gross Tons 1921 (Calendar Year)	Exported by United States to Japan	Imported by Japan (Total)	United States Percentage
Black steel sheets.....	127,623	†220,540	73.1
Structural iron and steel....	48,827	†146,196	50.2
Steel rails	42,239	‡58,915	71.7
Steel plates	31,037	†	...
Tin plate, terne plate, etc....	30,076	42,282	71.1
Wrought pipes and fittings...	29,226	33,303	87.8
Steel bars	23,869	†	...
Plain wire	6,920	26,699	25.9
Wire rods	6,258	21,112	29.6
Wire nails	5,307	*16,841	31.5
Cast iron pipe and fittings...	2,802	†	...
Hoops and bands.....	2,233	5,978	37.4
Iron sheets and plates.....	2,169	†	...
Galvanized sheets and plates	1,305	16,444	7.9
Bar iron	641	†	...
Bolts, nuts, rivets and washers	617	1,600	38.6
Railroad spikes	526	†	...
Ship and tank plates.....	440	†	...
Nails (other than wire) and tacks	238	•	...
Barbed wire	15	†	...
Total finished steel....	362,368	‡ 612,876	59.1
Ingots, blooms and billets..	200	448	44.6
Pig iron	102	222,639	...
Total iron and steel..	362,670	835,963	43.4

*All nails in the one figure. †Plates and sheets included together. ‡Bars, rods, tees, angles, etc., in one figure. ††Includes fishplates. A Not reported separately. B Includes material not segregated above, as follows: "Material for construction of buildings, bridges, vessels, docks, etc.," 20,767 tons; metal screws, 1155 tons; wire rope, 683 tons; "steel cylinders for filling with compressed gases," 304 tons; insulated electric wire, 57 tons. The total of these five items is 22,966 tons.

RUSSIAN IRON AND STEEL

Production as Obtained from Soviet Sources Through Department of Commerce

The outstanding feature of the operation in 1921 of the nationalized steel industry in Russia, says a report of the Bureau of Foreign and Domestic Commerce, "was the sharp fluctuation which marked the course of production by months, by regions and by commodities within the same plant units. The statistics obtained since 1917 were taken from the Soviet official press. The accompanying table shows the comparative production of pig iron, open-hearth steel and rolled steel from 1913 to 1921 inclusive. Open hearth figures are for ingots and in rolled steel are included structural shapes, rails, plates and sheet metal, bars and angles and wire rods.

Soviet Figures of Russian Iron and Steel Production

Years	Pig Iron Poods	Open-hearth Steel Poods	Rolled Steel Poods
1913	257,000,000	259,000,000	214,000,000
1916	232,000,000	261,000,000	206,000,000
1917	165,000,000	188,000,000	149,000,000
1918	13,000,000	25,000,000	22,000,000
1919	7,000,000	12,000,000	11,000,000
1920	6,000,000	10,000,000	11,000,000
1921	7,000,000	10,000,000	12,000,000

In 1921 production reached a minimum in the third quarter. There then followed a marked increase in the last quarter, attributed by the Soviet press to the introduction of the "new economic policy," abolition of State rationing of labor, abandonment of the princi-

ples of wage equalization, and the introduction of straight tonnage pay and profit-sharing bonuses for the management of the works.

The metallurgical works of Soviet Russia are divided into the large plants controlled by the State and smaller mills under control of local provincial branches of the Bureau of Metals. The large State controlled group is divided into three regions, the Center, the South and the Ural. The employment of labor in this large State owned group during 1921 and including January of this year is given as follows:

Employment in State Groups of Plants

Region	January, 1921	April, 1921	July, 1921	October, 1921	January, 1922
Center	77,671	78,595	70,782	56,379	58,000
South	53,802	53,631	51,000	54,000	59,000
Ural	85,789	91,096	80,970	56,975	56,670

Total employees 217,262 223,322 202,752 167,354 173,670

The drop in number of employees during the second quarter is accounted for, according to the Soviet press, partly by migration to agricultural districts and partly by demobilization and famine, while the drop in the fourth quarter was caused by the reduction of staff, accompanying the introduction of the new wage system. This fourth quarter saw the greatest development of the steel and metal working industries since 1917.

While the Soviet Government has retained operation of the basic steel industry, it has endeavored to transfer the operation of small mills and shops to former owners and co-operatives by leasing. Only 251 metal working establishments, however, were leased out in this way in 1921, and these were mostly small shops producing hardware, nails and agricultural im-

plements. But one concession in this branch of industry has been closed with foreign enterprises, the SKF interests. This had a Moscow factory in 1915, which was taken over by the Soviet Government. It has closed an agreement to operate the plant and one under construction near Moscow on a cost plus basis. The company is guaranteed 15 per cent profit on all State orders and is allowed to sell in Russia, or export, at its own prices, 15 per cent of the finished product. The plant will be under Swedish management and materials are to be furnished from the Ural region by the Soviet Government. At present the SKF company is compelled to import some of the fuel and all the high grade steel. Within two years the Soviets guarantee to produce the steel to required specifications, and with this end in view the company has installed Swedish metallurgists at the steel mills of the Urals, to act as instructors. The Government has furnished liberal guarantees on labor.

Manufacture of Iron and Steel Tubes in Germany

The number of processes of tube manufacture in use in Germany is considerable, both of the welded and seamless varieties. A recent writer, according to the *London Iron and Coal Trades Review*, distinguishes some five processes for welded and nine for seamless tubes, the former including butt-welded and drawn tubes, lap-welded tubes (patent rolled type), water-gas welded tubes and autogenous and electric-welded tubes. Of the methods for seamless tube production may be mentioned manufacture on the skew-roll and Pilger mill system (Mannesmann), mandril and drawing press method (Ehrhardt), skew and continuous roll method, Stiefel's skew-roll and two-high mill train method, mandril-press and double mill (Ehrhardt).

Of interest is the Ehrhardt method for manufacturing very large diameter seamless tubes and hollow articles. They are made from square or other section ingots, in a mandril press, the rough body being afterward finished in a drawing press and the bottom cut off. The tube or pipe thus formed is then rolled in a special mill in which the working rolls rotate inside and outside the tube, thus rolling the walls out to the required thickness.

Japan's Steel Industry and a Duty

The output of iron and steel in Japan has fallen off considerably since 1919, and a further reduction is anticipated when armament limitation becomes effective, says the *London Iron and Coal Trades Review*. The minister of commerce informed the members of the budget committee of the House of Peers that the production of the Yawata Steel Works for 1919 amounted to 610,000 tons of pig iron, and 550,000 tons of steel. In 1921 the output was 500,000 tons of pig iron and 530,000 tons of steel. The chief of the Yawata works said that foreign iron and steel are imported and sold at lower prices than the Japanese makers can meet, and that the armament limitation would reduce the output of finished steel by about 60,000 tons annually. The Industrial Investigation Council has formulated three plans for the relief of the industry. The first is the amalgamation of the iron and steel industries; the second, tariff protection, and, the third, the granting of subsidies. The first plan is thought to be difficult of realization owing to the conflicting interests among makers, and the Industrial Council is now carrying on investigations in regard to the other two measures.

Civil service examinations for an assistant radio engineer at a salary of \$2,400 a year and for an optical computer at a salary of \$6.88 per diem have been announced by the United States Civil Service Commission, Washington. Particulars can be obtained either by applying to the commission or to its representatives in the post office buildings of the leading cities of the country. Applicants should ask for form 2118 in the case of the radio engineering position and for form 1312 in the case of that of optical computer.

BRITISH FOREIGN TRADE

April Steel Exports Less Than March But Still Large—Imports Light

The April official returns of British foreign trade in steel and iron show that the total exports were 274,422 gross tons. This is a decline of 37,232 tons from the March outgo. The April exports are next to the largest for the year and compare with a monthly average of 267,047 tons for the first quarter. In April, 1921, the exports were 161,508 tons. These data include scrap.

The April imports were 72,074 tons or only 1913 tons in excess of the March receipts. The monthly average for the first quarter is 82,536 tons. In April, 1921, the imports were 111,536 tons. These data also include scrap. The following table shows comparative data:

British Steel Exports and Imports, Gross Tons			
	Exports		Imports
April, 1922.....	274,422	72,074	
Average per month, first quarter, 1922....	267,047	82,536	
Average per month, 1921.....	144,885	152,734	
Average per month, 1920.....	274,881	125,687	
Average per month, 1919.....	188,519	50,801	
Average per month, 1913.....	420,757	195,264	

The trend of some of the principal exports is shown by the following data:

Principal British Exports, Gross Tons				
	Average per Month		April	
	1913	1921	1921	1922
Pig iron.....	78,771	8,602	7,218	37,040
Steel rails.....	41,676	14,698	25,008	28,398
Steel plates.....	11,162	10,673	13,949	8,036
Galvanized sheets.....	63,506	17,635	9,659	40,454
Steel bars.....	20,921	8,927	10,592	14,841
Tin plates.....	41,208	18,873	13,667	36,055
Black plates.....	5,679	1,178	878	5,707
Steel sheets.....			5,226	13,668
Total exports, first quarter, 1922.....				1,073,565
Total exports, first quarter, 1921.....				711,627

As in January and recent months, exports of steel rails, galvanized sheets and tin plate have shown the most marked recovery. To this must now be added pig iron.

Pig iron imports in April were 7419 compared with a monthly average in 1921 of 55,564 tons.

Iron ore imports in April were 255,687 tons, which compares with a monthly average in 1921 of 157,298 tons.

Manganese ore imports in April were 8712 tons. Last year they were 14,405 tons per month and in 1913 they were over 50,000 tons per month.

Foreign Pig Iron on Pacific Coast

In writing of the competition of English and Belgian pig iron with American pig iron on the Pacific Coast, the Matthew Addy Co. says in its market review:

"The Pacific Coast is one of our problems. Up to very recently the English and Belgians supplied that market, shipping iron and coke almost as ballast. Our domestic prices and our freight rates simply put us out of competition. But about three months ago, when our prices touched bottom and when at the same time the rates via the Panama Canal suffered a sharp decline, we were able to send to the coast quite a quantity of iron. But now that our prices have gone up the Europeans are again in control of the Pacific Coast market, all of which hurts our feelings. It seems an economic crime that English coal should be going into Boston and that Los Angeles, San Francisco and Seattle should be tributary to regions as far off as north Europe rather than to America. Before the war the freight on iron from Birmingham to San Francisco was \$12.80. It is now \$22.40 and on July 1 it will be \$19.20. These figures tell the story."

The United Coke & Coal Co. has opened offices at 2013 Fisher Building, Chicago, for the sale and distribution of Roberts by-product, and Connellsville industrial, foundry and domestic coke; also Pocahontas and all grades of Illinois, Indiana and Kentucky coal. J. G. Supple, formerly of the Wisconsin Lime & Cement Co., and Lewis D. McClaren, formerly of Rogers, Brown & Co., are in active charge.

Inquiry in Merger of Steel Company

(Continued from page 1591)

- Q. Then you knew the figures? A. As related to us.
- Q. The figures related to all three of you, didn't they?
- A. They related to all three if they were accepted by all three, but I could not tell whether they would be accepted.
- Q. That is, you knew the figures of this merger so far as your company was concerned, and so far as the Midvale was concerned? A. I had the same information on all.
- Q. You knew they were satisfactory to the Midvale?
- A. I knew the tentative figures.
- Q. Answer my question. A. I understood they were. I did not know it from any practical knowledge.
- Q. You did not? A. No.
- Q. Who presented these figures to you? A. Counsel.
- Q. Counsel for whom? A. Counsel for the company.
- Q. He is also counsel for the Midvale, isn't he? A. I believe so.
- Q. Don't you know it? A. I do know it. I said I believed so.
- Q. You do know it, don't you, and have known it always? A. Yes, I know it.
- Q. So that when this agreement or memorandum showing the terms of the merger was approved by your board, you knew it was approved by the Midvale, didn't you? A. Yes.
- Q. When did the Inland people have their meeting? A. They were in session late in the afternoon, I don't know at what hour.
- Q. When? A. I don't know.
- Q. How many days ago? A. They were in session yesterday.
- Q. When were they in session before? A. I don't know.

Mr. Dinkey's First Examination

A. C. Dinkey, president Midvale Steel and Ordnance Co. followed Mr. Grace on the stand Thursday afternoon. He was examined at length as to the various attempts to bring about mergers. Mr. Dinkey said that he had no information beyond Mr. Campbell's statement as to the cause for the withdrawal of the Youngstown Company. Then this colloquy ensued:

- Q. Didn't Mr. Campbell ever talk to you on the subject after he had retired from this merger? A. No, he did not.
- Q. Did you ever learn? A. I did not learn.
- Q. Were you ever told it was because it was not agreeable to J. P. Morgan & Company that his concern should be in that merger? A. I was never told that, nor anything like it.
- Q. You would not like to buck up against the U. S. Steel Company with a merger that was not agreeable to J. P. Morgan, would you? A. There would be a lot pleasanter occupations than that.
- Q. There would be a lot safer ones, wouldn't there? A. There would.
- Q. The occupation which you are in today is a safer one than that, isn't it? A. I think it is.
- Q. How did you get the information that this would be agreeable to them? A. I did not get it.
- Q. But you believe it is so, don't you; otherwise you would not be in? A. I haven't any idea whether it is agreeable or disagreeable.
- Q. You say there would be a lot safer and pleasanter occupations than to rush into a thing of that kind that was not agreeable. Have you not secured any assurance that it is agreeable, before pledging yourself to this combination? A. Certainly not.
- Q. What is going to happen, if it is not agreeable; are you going to get out? A. No, we are going to continue in the iron business.
- Q. I know you are going to continue in the iron business. A. And we are not going to ask the Steel Corporation.
- Q. You are going to get out of the merger, are you not, if it is not agreeable? A. No; I don't think so.
- Q. Perhaps you will take another think on that? A. All right, I will take as many as you want. This country has lots of room for people in the iron business.
- Q. I know, but you don't want to do things that are disagreeable, and that are not safe? A. I don't want to do things that are not safe. Whether they are agreeable to the Steel Corporation, I am not giving much concern to that.
- Q. What did you mean when you said that you knew of things that would be more agreeable and safer than to go into a merger of this kind that was not agreeable to the United States Steel Corporation? A. We prefaced that by "bucking up against them."

- Q. When did their board approve this memorandum? A. That I don't know.
- Q. You never asked, did you? A. I got the information—
- Q. You never asked, did you? A. Late in the afternoon, after I left here.
- Q. You had never asked before? A. No.
- Q. When you were asked upon the witness stand yesterday to give the tentative figures of that merger, you knew what the tentative figures were? A. I told you—
- Q. Did you know what the tentative figures were? A. I told you—
- Q. Did you know what the tentative figures were?

THE CHAIRMAN: Answer the question, Mr. Topping. We spent all day yesterday listening to this kind of stuff from you men, and we are not going to spend any more time.

MR. UNTERMYER: This Committee is not going to be trifled with by your people any more. Do you understand that. Read the question. (Question repeated by stenographer.)

- A. No, sir.
- Q. Did you tentatively? Don't you know you were asked tentatively what they were, and you said you didn't know and you would try to get them? A. My answer—
- Q. Did you say so? A. Whatever the record shows.
- Q. Have you heard your testimony read? A. I have.
- Q. Is it correctly reported? A. I think it is.
- Q. If you knew the figures, why did you give such an answer? A. Because those figures were likely to be changed.
- Q. You knew what the word tentative was. You used that word yourself. A. In the broad sense, I did.
- Q. When you were asked for the tentative figures, and said you did not know what they were, you knew you were not telling the truth? A. I did not, and I was telling the truth.

- Q. When that merger gets together it does buck up against them, doesn't it? A. I would not describe it that way.

Q. Don't you think it does? A. I do not describe it as bucking up against them; that sounds very aggressive.

- Q. Do you think so? A. Yes.
- Q. If this merger is put together as a competitor, don't you expect to be aggressive? A. We do, very.

Q. Then you will buck up against them? A. I would not characterize it as that.

Q. What would you call it—competing with them? A. Yes.

Q. —as hard as you know how? A. As hard as I know how.

Q. That is not bucking up against them? A. That has a disagreeable sound to it.

Q. You expect to do the same thing, under a more agreeable name? A. Yes; the other is more of a Dempsey situation. I don't think we would do that.

Price Not the Whole Thing

Mr. Dinkey said the capacity of the Midvale company is about 2,600,000 tons of ingots. He said he did not know what is the extent of the differential in favor of the United States Steel as compared with independents in the manufacture of steel. He said that price is not the whole thing in competition, and added, "I think some of my goods are worth more than some of their goods, and I think we get it." He said his company had not been making money, but added, "I think we are in the black now." As to steel companies owning railroads, he thought that, owing to the power that exists to regulate rates, it makes almost no difference whether the steel companies own railroads or not.

Question of Individuality

Referring to economies which might be affected by mergers, and also to possible loss of individuality, the testimony proceeded as follows:

Q. Is there no individuality in these concerns now? A. A very great deal—you saw Mr. Topping.

Q. Don't you realize that that will disappear in the large organization? A. The kind of individuality which we were talking about in an old firm, that extended to his goods, is not the same as what we have in these three companies.

Q. You have said that you have a decided individuality

in these companies, and I am asking you whether you do not think that will largely disappear with consolidation?
A. Yes, I think that will, yes.

Q. And don't you see that that is the loss of an element far more valuable than could be made up by the mere curtailing of sales agent? A. No; I don't think so. I think they are just as able to provide a force that will handle the business, perhaps better than it was handled before, if it is handled in a consolidated way.

Q. Is it not the fact that where you close sales agencies, consolidate them, that it is found that one man cannot sell as much goods as two, even if there is no competition?
A. Generally, of course, two men can sell more than one.

Q. How near to completion is this merger? Can't you

tell us anything more about it than you have told us? A. No; I can't tell you anything more about it.

Q. Then it is very nebulous? A. It is just under discussion.

Q. And there is no telling how far it will go? A. No.

Q. Or whether it will go through or not? A. There really is no telling.

Q. It has not reached the point at which we can know what its real scope is going to be? A. It has not.

Q. How long do you suppose it is going to take before the committee can be informed as to the state of this merger. A. I could not estimate that.

Q. You cannot tell us within a few weeks? A. No, because it might not go on.

Mr. Dinkey Called Upon to Explain His Thursday Testimony

At the opening of the Lockwood Committee hearing Friday morning, Mr. Untermeyer made a statement in which he claimed that both Mr. Topping and Mr. Dinkey in their testimony on Thursday had "trifled" with the committee by declining to give detailed information regarding the Midvale-Republic-Inland merger. One question Mr. Untermeyer asked Mr. Dinkey on Thursday was, "How long do you suppose it is going to take before the committee can be informed as to the state of this merger?" to which Mr. Dinkey answered, "I cannot estimate that." Mr. Untermeyer then asked, "You cannot tell us within a few weeks?" Mr. Dinkey answered, "No, because it might not go on."

"Hardly had these gentlemen left the witness stand," said Mr. Untermeyer on Friday morning, "when a formal and official statement was made of this merger, showing in detail the total amount of capital, the total amount of common and preferred stock that had been apportioned to each of the concerns, the total amount of bonds, the total stock and bonds, the total assets and every possible detail of the merger."

Mr. Untermeyer stated that Mr. Topping and Mr. Dinkey were not frank with the committee.

Following the testimony of Judge Gary, who appeared upon the stand immediately after Mr. Untermeyer's statement, Mr. Dinkey was recalled to the stand and was questioned regarding his testimony of Thursday. Mr. Untermeyer asked him, "Do you mean to say that when you testified yesterday you were ignorant of the fact that these figures (relating to the merger) had been arrived at and that an announcement would be made?" His answer was "That is true, yes." "You were ignorant of that fact?" asked Mr. Untermeyer. Answer: "Yes, because it wasn't a fact."

Mr. Dinkey explained that the merger became a fact late Thursday afternoon at about the time he was testifying. He denied that he had been deceiving the committee and explained that the final details of the merger had not been completed at the time he left his office on Thursday to attend the Lockwood Committee hearing at the New York City Hall. Mr. Untermeyer asked, "Don't you know this announcement is the culmination of weeks and months of negotiations?" A. "Of course, I do." Q. "That culmination had come, had it not, before you went upon the witness stand yesterday?" A. "I am sure it had not." Q. "Would you like to make any further explanation, because we think you were trifling with the committee." A. "There is no further explanation that I can make."

Mr. Dinkey explained in answer to further questions that William E. Corey, chairman of the Board of Midvale Steel & Ordnance Co., had been empowered by the board to carry out the negotiations. He said that about two weeks ago the Midvale board approved a form of agreement as a basis for the merger.

Mr. Untermeyer stated that there had been very active speculation in Midvale stock during the past two weeks, 389,000 shares having been dealt in, he said, during the week of May 20, and 359,000 shares during the week of May 27. "Do you know who has been doing all that trading?" he asked Mr. Dinkey, to which Mr. Dinkey replied: "I haven't the least idea." A further question was, "Are you aware of the fact that in the previous year, during four months of that year, as against these two weeks of 750,000 shares, there were only 249,000 shares dealt in altogether?" Mr. Dinkey said he didn't know it.

Then Mr. Untermeyer said, "We want some explanation of your testimony, if there is any, as compared with the facts of the situation. Is Mr. Topping here?" There being no response, Mr. Untermeyer said to Mr. Dinkey, "The committee is not going to permit witnesses to treat the committee in that way to suppress facts in that fashion."

Sheet and Tin Plate Wage Agreement Renewed

YOUNGSTOWN, OHIO, June 6—The sliding scale wage agreement has been renewed by Mid-west sheet and tin plate makers with representatives of employees, following a week's conference at Atlantic City. The new agreement, effective until June 30, 1923, is virtually along the same lines as the 1921-22 contract, which expires at the end of June. A number of minor changes were made in the foot notes, principally affecting working conditions. Tin house workers, representing but a small proportion of employees of tin mills, were given a 5 per cent reduction.

To handle the wage scale, the employers act through an organization which they call the Western Sheet and Tin Plate Manufacturers' Association, of which A. N. Flora, vice-president of the Trumbull Steel Co., Warren, is president, and James H. Nutt, Youngstown, is secretary.

Employees were represented at the conference by M. F. Tighe, president of the Amalgamated Association of Iron, Steel and Tin Workers, other officials of the organization and delegates of the component locals.

Conference between the Western Bar Iron Association and representatives of workers, to renew the agreement covering wages and working conditions in this division of the industry, opened Monday at Atlantic City.

Lake Iron Ore Shipments in May

Shipments of iron ore from the Lake Superior region in May were 1,585,305 gross tons, or 38.88 per cent less than in May, 1921, when the total was 2,594,027 tons. This is a decrease of 1,008,722 tons for May this year. In May, 1921, there was a decrease of 62.81 per cent from May, 1920. The comparative shipments by ports for May, 1921, and May, 1922, and for the season were as follows in gross tons:

	May, 1921	May, 1922	To June 1—	
			1921	1922
Escanaba	72,048	177,719	72,048	217,938
Marquette	13,985	70,125	13,985	70,125
Ashland	208,390	272,134	217,539	296,689
Superior	730,708	669,297	842,556	721,684
Duluth	1,199,457	217,062	1,226,888	236,062
Two Harbors.....	369,439	178,968	397,222	178,968
Total.....	2,594,027	1,585,305	2,770,238	1,721,466
Decrease		1,008,722		1,048,772

The decrease to June 1 this year is 37.85 per cent as compared with the same date in 1921, or 1,048,772 tons. A year ago there was a decrease as compared with 1920 of 4,436,701 tons. The Duluth and Superior percentage of the total to June 1 this year was 55.63 per cent against 74.70 per cent last year. The Escanaba proportion of the total was 11.66 per cent as compared with 2.61 per cent last year. Duluth's percentage of the total this year was only 13.71 as compared with 44.29 per cent to June 1, last year.

Plans of New Companies

Bowie, Lydon & Co.

A. W. Bowie and J. J. Lydon, connected for the last 25 years with Westinghouse, Church, Kerr & Co., and Dwight P. Robinson & Co., their successors, have resigned and organized the construction firm of Bowie, Lydon & Co., with main office at 340 West Harrison Street, Chicago. Mr. Bowie has been in responsible charge of the design and construction of many shops, office buildings and power plants for railroads and industries, including the Missouri Pacific Ry. Co., the New York, New Haven & Hartford Ry. Co., Crane Co., American Can Co., J. I. Case Threshing Machine Co., S. F. Bowser & Co., The Sugar Land Industries and the Armour Leather Co. Mr. Lydon, as general superintendent of construction, was in entire charge of the construction of the U. S. Government nitrate plant at Muscle Shoals, the embarkation camps Stuart and Hill, and other facilities at Newport News, Va., the Calgary shops for the Canadian Pacific Ry. Co., the West Burlington shops for the Chicago, Burlington & Quincy R. R. Co., shops and power plant for the Union Pacific R. R. Co., at Omaha, Neb., the Easton plant of the Taylor-Wharton Steel & Iron Co., power plant for Worcester Light & Power Co., Chicago Heights fertilizer works for the Armour Co., and many other similar railroad and industrial improvements. W. G. Blerd, president of the Chicago & Alton R. R. Co., has been elected to the presidency of the new organization. Mr. Blerd has been engaged in the construction and operation of railroad properties since 1882 and as general manager of the Panama Railway & Steamship Co., rebuilt the Panama R. R. as part of the construction of the Panama Canal.

Buell, Scheib, Mueller, Inc.

W. C. Buell, Jr., Walter H. Scheib and Edward O. Mueller announce the organization of Buell, Scheib, Mueller, Inc., with offices at 204 Columbia Bank Building, Pittsburgh. The firm is organized primarily to engage in combustion engineering on a consulting basis and will not enter into the manufacture of furnaces. Mr. Buell at present is chief engineer of the George J. Hagan Co., Pittsburgh, and before making that connection had been with Tate, Jones & Co., for several years, latterly as chief engineer. He saw service in France during the war in the Engineer Corps and is a captain of Engineers, U. S. R. Mr. Scheib leaves Tate, Jones & Co., with which he has been affiliated for the past 12 years, for the past two years as Pittsburgh district manager. Mr. Mueller formerly was in charge of the gas producer department, George J. Hagan Co., and has had much engineering experience with the H. L. Dixon Co., glass furnaces, Carnegie, Pa., the Koppers Co., Pittsburgh, as well as at the plants of steel companies in this and the Youngstown districts.

Gardner Tap & Die Co.

The Gardner Tap & Die Co. was recently incorporated for the purpose of refinancing and taking over the business of the Gardner-Bryan Co., Cleveland, manufacturer of taps, dies and screws plates. F. W. Wood, president of the Wood & Spencer Co. and the Cleveland Castings Pattern Co., is president of the new company, J. M. Gardner and R. H. Smart of the former Gardner-Bryan Co., vice-president—sales manager, and treasurer, respectively, and D. G. Miller, secretary of the Wood & Spencer Co. and the Cleveland Casting Patterns Co., secretary. The above with A. K. Spencer, vice-president of the Wood & Spencer Co. and the Cleveland Castings Pattern Co.; F. H. Wood, Watertown, Mass., who after graduating next month from Massachusetts School of Technology, will make his future home in Cleveland, and F. E. Gardner of Beloit, Wis., comprise the board of directors of the new Gardner Tap & Die Co.

The Carey Printing Co. of New York has awarded contract for the erection of a one-story building 800 ft. long in East Bethlehem, Pa. to F. B. Glassmire. Work is now under way on the building, which will cost \$250,000. The plant will employ upward of 1000 men and women and have a weekly payroll of between \$30,000 and \$40,000.

The Sun Radio Mfg. Co. is manufacturing radio parts and complete sets at its plant at 116 West Sixty-fifth Street, New York.

The recent incorporation of the Pressed Steel Mfg. Co. was merely a change from one state to another. The Pressed Steel Mfg. Co. and the Imperial Appliance Co. were recently merged with another allied company, the Union Metal Products Co., 20 West Jackson Boulevard, Chicago.

The E. J. Woodison Co., Detroit, has been incorporated to succeed a company of the same name. The new company has a capital of \$600,000, whereas the old one had a capital of \$100,000. The company manufactures fire brick, foundry facings and foundry equipment.

The Javins-Brandmaier, Inc., chartered to manufacture electric starting apparatus, has leased a plant at Jamaica, L. I.

The Nenno Metals Co. has been organized by Clayton A. Nenno, who has been for 19 years in the steel, iron, white metal alloy and non-ferrous metals business in Buffalo, and J. Harrison Welch, who has been associated with one of the Buffalo jobbing houses as salesman and department manager for the past 16 years. The new company has a Buffalo warehouse and offices at 520 Seneca Street, carrying brass, bronze, aluminum and copper in bars and sheets, along with such other metals as solder, spelter, etc.

The Ontario Knife Co., Franklinville, N. Y., has not decided on erecting a new plant as reported. The company made the statement that it would erect a plant if the new tariff law should be favorable, but it does not regard the pending tariff bill as favorable in its line of business, and it states that the erection of the plant has become a remote possibility.

The Merwin Screw Co., Inc., automatic machine screw products, Bridgeport, Conn., has taken over the business of the Merwin Rivet Co. Some additional equipment has been installed. The company does not contemplate building at present. It is not in the market for equipment.

The Wade Ticket Machine Co., 121 Redwood Ave., Paterson, N. J., is having its ticket machines built by the Frederick Pearce Co., New York.

The Jenkins Mfg. Co., 4607 Ravenswood Avenue, Chicago, has been incorporated to manufacture radio equipment. H. D. Jenkins is president and J. D. Vandercook is secretary.

Trade Changes

The Cleveland Duplex Machinery Co., Inc., 1224 West 6th St., Cleveland, has been appointed exclusive representative by the Diamant Tool & Mfg. Co., Inc., 91-97 Runyon St., Newark, N. J., in connection with the sale of Diamant standard punch and die sets, in the territory covered by the northeastern section of Ohio comprising the district of Cleveland, Sandusky, Canton, Mansfield, Akron and further covered by the counties of Erie, Huron, Richland, Lorain, Ashland, Cuyahoga, Medina, Wayne, Summit, Stark, Lake, Geauga, Portage, Ashtabula, Trumbull and Mahoning.

The W. J. McKee Machinery Co., Detroit, has been appointed sales agent for the General Mfg. Co., Detroit, for the State of Michigan, in the sale of power presses made by the General Mfg. Co.

The Illinois Zinc Co., Peru, Ill., has opened a sales office in the McCormick Building, Chicago.

The American Machine Products Co., Detroit, has changed its name to the Ampco Twist Drill & Tool Co. It will continue to manufacture twist drills, reamers, cutters, gages and special tools.

The Lockstone Corporation, 17 Battery Place, New York, has established a commercial department in Havana, Cuba. Bolivar S. Romero, formerly of Bolivar Romero & Co., has been placed in charge as manager. The former will continue to act as agent for various lines of steel products, hardware and machinery.

The United States Ferro Alloys Corporation has found it necessary to enlarge its executive offices which are now being moved to the new Liggett Building, 41 East Forty-second Street. Its plant at Niagara Falls, N. Y., is reported operating at full capacity.

Thomas L. Hammond, long connected with foundry and machine work, will open a sales office, representing, on a commission basis, producers of steel, malleable, gray iron and non-ferrous metal castings, machine work, forgings, stampings and patterns. His present address is Box 248, Chester, Pa.

Reorganization of the Connecticut Electric Steel Co., Hartford, Conn., is in progress through sale of the plant to M. W. Taggart & Co., New York. All details of dissolving the old company and re-incorporating the plant under the name of the Electric Foundry Co. will be completed in time to resume operations by July 1.

The Wagner Electric Mfg. Co., St. Louis, Mo., has moved its Salt Lake City office to 313 Dooly Building.

The Southern Steel & Rolling Mill Inc., has been organized with \$200,000 capital and has taken over both the 8-in. and

16-in. mills with real estate and all improvements from the Gerson Rolling Mill Co. The mills are being equipped with independent electric drives and with two new four-door furnaces. It will have a daily capacity of 100 tons, specializing on reinforcing deformed bars which are covered by patents. An improved fence post will be manufactured and the regular merchant bar trade supplied.

The Milwaukee Steel Foundry Co., Milwaukee, Wis., has changed the address of its Chicago office to read: 975 Old Colony Building, Chicago.

The Central Iron & Coal Co., 90 West Street, New York, has moved its office to 41 East 42nd Street, New York.

The Morgan Construction Co., Worcester, Mass., has changed its Pittsburgh office from 703 Arrott Building to 610 Magee Building, Pittsburgh.

The Northwest Engineering Co., Green Bay, Wis., builder of crawl tread locomotive cranes, has appointed Hedge & Matthais, 50 Dorchester Street, Boston, as agents for the New England district.

The Steyn, Pease Co., representative, iron and steel products and hardware, has changed its address from 100 Church Street to 300 West 56th Street, New York.

The Arrow Tool & Mfg. Co. has changed its name to the Forsberg Mfg. Co. This step is taken out of deference to another concern having the same name and using the word "Arrow" in its trade mark. The company will continue to handle stampings and tools as formerly.

The Taylor-Wilson Mfg. Co., McKees Rocks, Pa., recently opened a sales office at 1212 Park Building, Pittsburgh, Pa. This office is in charge of William Y. Banks, Jr., as special sales manager.

The Mechanical Appliance Co., 133 Stewart Street, Milwaukee, manufacturer of electric motors, dynamos, etc., has changed its corporate title to the Louis Allis Co. Louis Allis, who is a son of the late Edward P. Allis, founder of the Allis-Chalmers Co., continues as principal owner and president.

The New Orleans, La., office of the Mississippi Valley Structural Steel Co., which is a merger of the Christopher & Simpson Iron Works and the Decatur Bridge Co., is at 800 Maison Blanche Building, with H. S. Schenter, who has been with the former company, and E. J. Grubel, formerly with the latter concern, jointly in charge.

The American Electric Fusion Co., Chicago, has changed its address from 1906 North Halsted Street, to 973 Montana Street, Chicago.

The Modern Machine Tool Co., Jackson, Mich., manufacturer of cutting-off machines, has taken over the stock and tools of the Sprague-Hayes Co., Detroit, to manufacture the Quickgrip table vise.

The B. & W. Tool & Die Co., Cleveland, has removed to 6505 Carnegie Avenue.

The McMinn & Quigley Steel Co. has been appointed the New England representative with offices at 40 Central Street, Boston 9, Mass., of the Warren Iron and Steel Co., Warren, Ohio.

Merchants Metals Corporation, 233 Broadway, New York, has changed its address to 30 Church Street New York.

To Reorganize Wagner Mfg. Co.

The board of directors and a stockholders' committee have approved a plan for refinancing the Wagner Electric Mfg. Co., St. Louis, as submitted to the stockholders in a letter from Waldo A. Layman, president. The plan contemplates the authorization of \$3,000,000 of 7 per cent cumulative preferred stock, one half of which is to be sold to stockholders now; \$2,500,000 of 7 per cent bonds, which will be sold to a syndicate of St. Louis bankers, and 80,000 shares of no par value common stock, of which 58,270 are to be exchanged share for share, with the holders of present common stock, 20,000 shares to be used to accomplish the reorganization and refinancing of the company and the rest to remain in the company's treasury.

The preferred stock to be offered to stockholders on June 10 at par, or \$100 a share, will carry with it a bonus of two-thirds of one share of no par value common stock with each share of preferred stock taken.

The United States District Court, Boston, has denied the petition of Frank D. Zell, Philadelphia, for the appointment of a receiver for the Harley Co., Springfield, Mass., forgings. Mr. Zell is a stockholder, and the court ruled that receiver petitions should come from creditors.

IRON AND INDUSTRIAL STOCKS

Public Interest in Steel Mill Securities Continues Active

Indications of additional combinations of plants, together with the Lockwood committee investigation have served to heighten public interest in steel mill securities. The element of speculation appears greater than heretofore, however, although investment buying based on the supposition that impending freight rate reductions will result in larger earnings and returns on the investment, is reported in banking centers. On the other hand, public interest in equipment and manufacturing securities has lessened, while in oils, sugars and certain other classifications of stock, it has increased. The improvement in equipment and manufacturing industries appears, therefore, to have been discounted. Values of all securities hold firm, however, largely because of the continued ease of money and rates for same. The strength of government securities and of sterling exchange is favorably commented upon in business as well as in banking circles.

The range of prices on active iron and industrial stocks from Monday of last week to Monday of this week was as follows:

Allis-Chalm.	49 - 50%	Lack. Steel	76 - 77%
Allis-Chal. pf.	- 97	Lima Loco.	112 1/2 - 115 1/2
Am. B. S. & F.	59 - 60 1/2	Lima Loco. pf.	- 114
Am. Can.	48 - 51%	Midvale Steel ...	38 1/2 - 42%
Am. Can. pf.	105 1/2 - 105%	Nat.-Acme	18 1/2 - 20 1/2
Am. C & Fdry.	163 1/2 - 167	Nat. En. & S.	48 - 55%
Am. C & Fdry. pf.	- 120 1/2	Nat. En. & S. pf.	93 1/2 - 93 3/4
Am. Loco.	114 1/2 - 116%	N. Y. Air Brake ..	78 1/2 - 78 1/2
Am. Loco. pf.	115 1/2 - 116	Nova Scotia Steel	33 - 37
Am. Radiator	99 - 100	Otis Steel	14 1/2 - 14 1/2
Am. Stl. Fdries.	37 1/2 - 38 3/4	Otis Steel pf.	- 62 1/2
Am. Stl. F. pf.	98 1/2 - 99 1/2	Pitts. Steel pf.	- 96
Bald. Loco.	115 1/2 - 120 1/2	Pressed Steel.	78 1/2 - 79 1/2
Bald. Loco. pf.	112 - 114 1/2	Pressed Steel pf.	98 1/2 - 99 1/2
Beth. Steel	75 - 76	Ry. Steel Spring.	104 - 104 1/2
Beth. Steel Cl. B.	77 1/2 - 78%	Ry. Stl. Sprg. pf.	112 - 113
Beth. Stl. 8% pf.	113 - 113 1/2	Repiogle Steel ...	34 1/2 - 36 1/2
Brier Hill	19 1/2 - 19 1/2	Republic	75 1/2 - 78%
Br. Em. Steel.	13% - 14	Republic pf.	93 - 95%
Br. E. Stl. 1st pf.	72 - 76	Sloss	48 1/2 - 50
Br. E. Steel 2d pf.	29 1/2 - 36 1/2	Sloss pf.	- 77
Chic. Pneu. Tool.	65% - 69 1/2	Steel of Canada.	74 1/2 - 76
Colo. Fuel	33 1/2 - 35 1/2	Superior Steel ...	- 34 1/2
Cruc. Steel	73% - 76 1/2	Trans.-Williams.	42 1/2 - 43
Cruc. Steel pf.	94 1/2 - 96	Un. Alloy Steel.	37% - 40
Deere pf.	78 1/2 - 80	U. S. Pipe.	34 - 35%
Dom. Steel	33 - 40	U. S. Pipe pf.	69% - 70
Gen. Electric	165 1/2 - 168	U. S. Steel.	100% - 103
Gt. No. Ore Cert.	40 - 42 1/2	U. S. Steel pf.	119 1/2 - 120
Gulf States Steel ..	82 1/2 - 85 1/2	Vanadium Steel.	49 - 51%
Inland Steel	55 - 58	Va. I. C. & Coke ..	- 55
Int. Har.	103 - 106 1/2	Westhouse Air B.	94 - 95
Int. Har. pf.	111 1/2 - 112 1/2	Whouse E. & M.	62 1/2 - 63%

Merger Plans Approved

Directors of both the Atlas Crucible Steel Co., Dunkirk, N. Y., and the Electric Alloy Steel Co., Youngstown, Ohio have approved plans for merger of the two interests. Special meetings of stockholders of both companies will be held shortly for final ratification. The merged interests have a yearly capacity for production of 40,000 tons of electric and crucible alloy steels. It is the plan to form a new company which will absorb the stock of both components and issue new stock in exchange.

Louis J. Campbell, president of the Electric Alloy Steel Co., is preparing to move to Dunkirk, where he will be located as chairman of the board of directors.

The directorate of the Youngstown company consists of prominent independent executives in part, among them James A. Campbell, president Youngstown Sheet & Tube Co.; Thomas J. Bray, president Republic Iron & Steel Co.; Jonathan Warner, president Trumbull Steel Co.; Severn P. Ker, president Sharon Steel Hoop Co., Sharon, Pa.; W. A. Thomas, director and member of the executive committee Brier Hill Steel Co.; Charles S. Thomas, former president DeForest Sheet & Tinplate Co., Niles, Ohio; A. E. Adams, Leroy Manchester, Maurice Joseph and S. Livingston Mather.

Industrial Finances

Net earnings of the American Steel Foundries for the quarter ending March 31, last, were \$738,728, or \$140,989 less than those for the corresponding period last year. After allowing for depreciation, interest charges, federal taxes, etc., there was a surplus of \$477,439, a decrease of but \$40,841 as compared with the surplus for the quarter ended March 31, 1921. The corporation paid \$129,418 less for interest charges and taxes than it did in 1921.

The last chapter in the Katahdin Iron Works, Maine, is about to be written when the Bangor & Aroostook Railroad discontinues its Katahdin Iron Works branch from Brownville Junction, which was opened in June, 1882, by the owners of the iron mine. This industry was abandoned in 1890.

BOOK REVIEWS

The Iron Man in Industry. By Arthur Pound. Pages xiv + 230. Published by the Atlantic Press, Boston. Price, \$1.75.

Human Factors in Industry. By Harry Tipper. Pages iv + 280. Published by Ronald Press Co., New York. Price, \$2.

Pulling Together. By John T. Broderick. Pages 141. Robson & Adey, Schenectady, N. Y. Price, \$1.

Mr. Pound's stimulating and scholarly volume, which intrigued many an amateur sociologist through the pages of the *Atlantic Monthly*, conveys to the practical executive the impression of a gifted, versatile and good-natured philosopher "looking in" upon industry rather than "looking out" from it; even if the plot is laid in Flint with its specialized manufactures and its unique industrial history.

Absolute standardization—for one season at the least—is a *sine qua non* of profit-making in the automotive industry and is necessarily accompanied by minute repetitive task work and an interchangeability which only mechanically controlled tools will provide. The "Iron Man," then, is not a crime but an invention mothered by necessity. Yet under wise management its attendant can be appealed to creatively and through ingenuity and his desire for mastery over the failings of the "Iron Man," which is no such Frankenstein of perfection as the unsophisticated readers of this finely written book will imagine.

The kind of people in our day who serve the "Iron Man" and *stay by* him is the point of importance. Their age and previous condition of ignorance or knowledge, what he is alleged to do to them and with them, and the reasons for their attraction are set forth by Mr. Pound in a wise, eloquent, and convincing plea to manufacturing communities not to allow the education of the young to concentrate on utilitarian to the neglect of cultural subjects, *because* the "Iron Man" will get them if they don't watch out or because he is sure to get them. While the dew of their youth is upon them they should have every obstacle placed in the way of their exploitation by industry, they should get to the full all the cultural preparation they can absorb—they will need it in their leisure and they will be uplifted by it at their work. Technique can wait. To all of this we say, Amen! We would only note that the fact of fixed mental levels and the amazingly low ones of millions of the people is not taken much account of in Mr. Pound's indictment. Education lends nothing to change this, though it can and should improve the use of existing powers.

Wise industrialists are not afraid of intelligence. It is ignorance that alarms them. Even in the service of the "Iron Man" it has been known to keep some of us awake nights. The simile of the book's title runs fancifully through the gamut of human history and society without much regard to relativity and without much profit. The premises of this book are much stronger than the conclusion and they merit close attention.

In our experience the "machine-made" opportunities for "killing time" between supper and slumber, for wasting to-day's greatly increased leisure of the worker, far surpass in their devastating possibilities and actuality the dangers of being an attentive valet to any "Iron Man" that we know of, for eight hours a day. Where care is taken to preserve the worker from strain—and our engineers are busy at this—and a well-considered appeal is made to his ascertained level of intelligence, which connects him interestingly as well as profitably with the quality of the product and with efficient maintenance of the "Iron Man," the worker who leaves the latter when the whistle blows is not necessarily the debilitated creature, thirsting for intensive and dangerous satisfactions before midnight, that our author pictures.

This is a thought-provoking book rather than one with which practical executives can wholly agree, but just because they can preserve relativity, managers,

superintendents, and owners should read, mark, and inwardly digest it, for half the antidote for the "Iron Man" is in their hands.

Mr. Tipper's book is a rapid review—a moving picture of the factors in industrial relations. It is a readable summary of them in twenty-two short chapters from the rise of the factory system to industrial education, unionism, collective bargaining inside and outside the plant, and management of labor. So many topics are touched upon that there is little space in any one case to do more than describe it, offer a brief but well-considered opinion and pass on.

This book will serve a useful purpose in conveying an idea of the importance and extent of its subject to plant executives who would not tackle to begin with the many treatises on the separate details of industrial relations which now exist and are familiar to the new generation. The machinery of employee representation in several well known concerns is given the larger space it calls for, without comment, and the Whitley Councils in Great Britain are described through the literature extant. Recognition, however, is not given to the fact that these councils, established over five years ago, are not functioning today to the useful extent expected of them and English labor has very little use for them. As a likely scheme, in a little country like Great Britain with a concentrated industrial area, they have proved a disappointment. In our 48 sovereign States they would be impossible. This volume will not offer the busy executive much help on "how" to do but it will suggest "why." Too many men in the metal trades have not even reached the latter stage and they can profit from this discriminating study by a practical man of broad vision.

Mr. Broderick's little book deals wholly with the necessity for, the form and the results of well-conceived employee representation. It pictures no specific machinery, but it features attractively the human reactions involved. It takes the unusual form of a smoking room conversation between two casual acquaintances on a train. It sets forth accurately the pitfalls to be avoided, the points to be made, and the psychology of the worker and of the executives and his employer in really "getting acquainted," after years of pretending to know each other. The points made by Mr. Broderick, and numerous others, must be fully appreciated at the outset by all employers, however well-intentioned and desirous, who really want to come closer to their people, to multiply themselves through their executives and foremen, and to bring in a new industrial day based upon understanding and confidence all around. For many people a plan "at work," exhibited in its human reactions, both favorable and unfavorable, is a good preliminary to a more careful and intensive study and "Pulling Together" will supply this need.

JOHN CALDER.

New Books Received

The Design and Construction of Oil Engines. By A. H. Goldingham. Pages 480, 4 1/4 x 7 1/2 in., illustrations, 200. Published by Spon & Chamberlain, 120 Liberty Street, New York. Price, \$4.

Construction of Radio Phone and Telegraph Receivers. By M. B. Sleeper. Pages 156, 5 x 7 1/4 in.; illustrations, 74. Published by the Norman W. Henley Publishing Co., 2 West Forty-fifth Street, New York. Price, 75c.

The Engineering Index, 1921. Pages 584, 6 1/2 x 9 1/4 in. Published by the American Society of Mechanical Engineers, 29 West Thirty-ninth Street, New York. Price, \$6.

The Steel Foundry. By John Howe Hall. Pages 334, 5 1/4 x 9 in.; illustrations 56. Second edition, published by McGraw-Hill Book Co., Inc., 370 Seventh Avenue, New York. Price, \$4.

Metal Statistics, 1922. Pages, 512, 4 x 6 in. Published by The American Metal Market, 81 Fulton Street, New York. Price, \$1.

Practical Least Squares. By Ora Miner Leland, B. S., C. E. Pages, 237, 6 1/4 x 9 in., illustrated. Published by McGraw-Hill Book Co., 370 Seventh Avenue, New York.

Machinery Markets and News of the Works

RAILROADS ARE MORE ACTIVE

Prospects for Substantial Buying by Carriers Appear Fairly Promising

Erie Railroad Has Issued Inquiry for 25 Machines and the Wabash Has Taken Bids on 22

Although the railroads have not yet bought machine tools in sufficient number to bring any marked improvement in the market, there is a considerable volume of railroad inquiry pending which may culminate in orders in June or July. The Erie Railroad, which has recently made a fairly large purchase of second-hand tools, has issued an inquiry for 25 new tools. The Wabash Railroad, at St. Louis, took bids up to May 25 on 22 machines, most of them of large type.

Inquiries of the Santa Fé, Illinois Central and Burlington are still pending at Chicago, but purchases are expected this month or next. The Rock Island is preparing a large list, but nothing definite is known as to when purchases will be made. The New York Central has inquired for four machines at New York and will shortly issue a larger list.

New York

NEW YORK, June 6.

The Erie Railroad has issued an inquiry for about 25 machine tools, mostly lathes, drilling machines and grinders. This road has recently bought a number of second-hand tools for some of its shops. The New York Central has issued an inquiry for four tools and is expected to issue a larger list shortly. The Nickel Plate Railroad last week bought a car wheel borer and a wheel press. Prospects for railroad buying appear somewhat more promising, but otherwise the local machine-tool market goes along within decidedly limited lines. Demand is mostly for one, two or three tools.

Few crane inquiries of any size have appeared the past week and purchases have been confined to single cranes of small capacity. The inquiry of the New York Municipal Railways for a 2-ton pillar crane to be mounted on a flat-car, for the Brooklyn Rapid Transit Co., has not been closed. The American Car & Foundry Co., which was in the market for 19 electric hoists ranging from 1-ton to 3-tons capacity, for use in the Detroit plant, is reported to have placed the order. When the inquiry of the Erie Railroad for its Hornell, N. Y., shops is issued it will probably call for a locomotive lifting overhead crane of about 250 tons capacity and a 15-ton overhead traveling crane. The Pennsylvania Equipment Co., Norwood, Pa., is in the market for a used electric traveling crane of 10-tons capacity, 25-ft. to 35-ft. span, 220 volts, 25 cycles, a.c. current. Egleston Bros. & Co., 166 South Street, New York, have purchased two 5-ton, 50-ft. span and one 10-ton, 65-ft. span overhead traveling cranes, for a warehouse in Long Island City, from the Niles-Bement-Pond Co., and will inquire later for two 3-ton to 5-ton, about 25-ft. span overhead traveling cranes. The Luckenbach Steamship Co., 44 Whitehall Street, New York, which is building a terminal in Hoboken, N. J., will not be ready to purchase equipment for at least three months.

Among recent purchases were: Davidson Brothers, 121 Passaic Avenue, Harrison, N. J., a 5-ton, 70-ft. span overhead traveling crane from the Pawling & Harnischfeger Co.; New York Central & Hudson River Railroad, a 40-ton gantry crane from the Northern Engineering Works; Southern Pacific Co., at New Orleans, a 200-ton, 77-ft. span, locomotive lifting crane and a 15-ton, 75-ft. span overhead crane, from the Niles-Bement-Pond Co., which also sold the two

The Nickel Plate has bought a car wheel borer and a wheel press and the Wheeling & Lake Erie has bought a car wheel borer.

In industrial lines there is no large volume of buying and May business on the whole showed little, if any, improvement over that of April. Some fairly-sized orders, however, have been placed, notably one for 52 drilling machines with a Cincinnati builder by a manufacturer of electrical equipment. Many of the automobile plants are extremely busy and prospects are that they will continue so for the next two or three months, at least. The Studebaker Corporation is expected to be a large buyer this month for expansion at South Bend, Ind. The Ford Motor Co., Detroit, has bought 27 molding machines from a Cleveland manufacturer.

School requirements still appear in the market. The Cleveland Board of Education has issued a list of 30 metalworking and woodworking machines on which bids will be received up to July 3.

Inquiry for cranes is fairly good. In the Pittsburgh district four large projects which are now being figured on by engineering companies will require a total of 103 cranes, on which preliminary figures have been given.

5-ton and one 10-ton cranes to Egleston Bros. & Co. Witherbee, Sherman & Co., Port Henry, N. Y., have purchased a used 20-ton industrial locomotive crane.

The Empire Tube & Steel Corporation, College Point, L. I., has awarded a contract to the L. A. Scott Construction Co., Grand Central Terminal, New York, for a new one-story plant, 100 x 300 ft., at Hudson, N. Y. C. J. Thompson is general manager.

The Consolidated Gas Co., 130 East Fifteenth Street, New York, has filed plans for a one-story forge and blacksmith shop, 75 x 80 ft., at 612-88 East Eighteenth Street.

Fire, May 27, destroyed a portion of the five-story plant of the Nichols Copper Co., Laurel Hills, Hunterspoint, L. I., with loss reported in excess of \$150,000, including equipment. Headquarters are at 25 Broad Street, New York.

A vocational department will be installed in the new high school to be erected at Port Jervis, N. Y., estimated to cost \$400,000. Tooker & Marsh, 101 Park Avenue, New York, are architects.

The Studebaker Corporation, 1700 Broadway, New York, is taking bids for a three-story service and repair plant on Dean Street, Brooklyn, 190 x 220 ft., estimated to cost about \$275,000. Tooker & Marsh, 101 Park Avenue, are architects.

The Air-o-Phone Corporation, 122 Fifth Avenue, New York, has been merged with the National Phonograph Co., Canton, Pa., covering primarily the manufacturing end of the business, with both companies retaining their present identities. Under the consolidation, the radio equipment of the first noted company will be manufactured at the Canton works, and it is planned to develop a capacity of about 300 sets a week. L. T. McFadden, president of the National company, has been made vice-president of the affiliated corporation.

Conveying and handling machinery, electrical and mechanical equipment will be installed in the five-story and basement warehouse, to be erected by James Butler, Inc., 390 Washington Street, New York, on property 200 x 600 ft. just acquired at Long Island City. The plant will cost about \$2,000,000, including equipment and site. William Higginson, 18 East Forty-first Street, New York, is architect. James Butler is president.

A vocational department will be installed in the three-story high school to be erected at Westbury, L. I., estimated to cost about \$350,000. Peabody, Wilson & Brown, 140 East Thirty-ninth Street, New York, are architects.

The Brooklyn Edison Co., 360 Pearl Street, Brooklyn, will make extensions and improvements in its power house at Analie Street and Rodney Avenue, to cost about \$50,000.

The Car Lighting & Power Co., 61 Broadway, New York, is disposing of a preferred stock issue of \$1,000,000, the proceeds to be used for its subsidiary, the Chotel Refrigerator Co., manufacturer of car refrigerating equipment, for extensions and operations.

The London Turbine Co., Watervliet, N. Y., manufacturer of turbine engines, etc., will soon take bids for a new two-story plant, to cost about \$150,000.

The Dubilier Condenser & Radio Co., 217 Centre Street, New York, manufacturer of wireless equipment, has leased a floor in the building at 48-52 West Fourth Street, for extensions. The company recently effected a merger with kindred interests. William Dubilier is president.

Vocational departments will be installed in the new senior and junior high schools to be erected on Tuckahoe Road and Hawthorne Avenue, respectively, Yonkers, N. Y., for which preliminary plans are being prepared by Chamberlain & Fairbrook, 18 South Broadway, architects.

The Jane Street Garage, Inc., New York, recently organized, has leased the building at 11-19 Jane Street, now in course of erection, for the establishment of a garage and automobile repair works. W. J. and H. J. Schaus head the company.

David B. Bartelstone, 310 Avenue A, New York, manufacturer of talking machine records and equipment, has leased the building at 424-30 East Nineteenth Street, for a new plant. Alterations will be made at once, prior to occupancy.

A vocational department will be installed in the new high school to be erected at Ravena, N. Y. Alexander Selkirk, 133 North Pearl Street, Albany, N. Y., is architect.

The Commanding Officer, Raritan Arsenal, Metuchen, N. J., will receive bids until June 12 for one lathe chuck, one ratchet drill, 39 twist drills and other requirements.

The complete plant of the New Jersey Tube Co., Kingsland Avenue, Harrison, N. J., manufacturer of metal tubing, will be sold by the trustee in bankruptcy, Andrew T. Fletcher, on June 13, including eight one-story buildings, comprising buffing mill, pressing and stamping plant, tube-bending mill, foundry, machine shop, etc., with equipment.

The Hamersley Mfg. Co., Garfield, N. J., operating a paper mill with present annual output of 20,000 tons, is disposing of a bond issue of \$750,000, a portion of the proceeds to be used for extensions and additions in working capital.

The Perth Amboy Oil & Terminal Co., Perth Amboy, N. J., W. Cameron, room 410, New Packer House, in charge, has plans under way for a new oil terminal and distributing plant near the city, estimated to cost about \$125,000. The installation will include steel tanks, pumping machinery, conveying equipment, etc. The company was organized recently. Luke Mooney, Sewaren, N. J., is president, and A. L. Baker, 25 Broad Street, New York, treasurer.

Charles A. Burroughs, Newark, N. J., has leased a portion of the building at 17-23 Nevada Street, for the establishment of a new plant to manufacture wireless equipment, with extensive experimental electrical laboratory.

The Lionel Corporation, 605 South Twenty-first Street, Irvington, N. J., manufacturer of mechanical toys, etc., has had plans prepared for a two-story addition to cost about \$25,000. William E. Lehman, 738 Broad Street, is architect.

The Ajax Mfg. Co., Newark, manufacturer of wireless equipment and parts, has leased a floor in the building at 538 South Tenth Street, totaling about 5500 sq. ft. of space, for a new plant.

The Public Service Electric Co., Public Service Terminal, Newark, will make extensions in its 14 electric generating plants to provide for an increase of 150,000 hp. capacity. The primary work will consist of an addition to the Essex Station and the installation of three new generators and auxiliary machinery; the installation of a 25,000 k.v.a., generating unit at Marion, Jersey City; and new generator at Burlington. Plans are being drawn for two new substations. N. A. Carle is electrical engineer.

The National Oil & Supply Co., 180 Frelinghuysen Avenue, Newark, has had plans prepared for a new one-story power house. A two-story brick tank house will also be built. William E. Lehman, 738 Broad Street, is architect.

The Federal Foundry Co., Garwood, N. J., has leased the plant of the Garwood Bronze & Iron Works, North Avenue, for the establishment of a new plant. George H. Cross, formerly vice-president of the Essex Foundry, Newark, is president.

New England

BOSTON, June 5.

The activity of one local dealer and the dearth of sales by the remainder are the outstanding features of the machine-tool market the past week. The dealer in question recently acquired a large amount of equipment from a Lowell manufacturer moving to New Jersey and in turn sold 25 to 30 machines, including lathes, milling machines, planers and a general line of tools, Rhode Island, Connecticut and Massachusetts manufacturers taking a majority. The same firm is negotiating with a Massachusetts interest for a large used tool, and with another concern for four or five high priced machines. This, together with perhaps six or eight other tools by different houses, and a new 30-ton Niles hand crane of the Carolina Construction Co. for the Tennessee Eastern Electric Co. constitute all the business reported for the past week.

Prospects, three or four weeks ago considered live ones, have become indefinite. The most promising are those of a railroad with a small list of fairly expensive tools, a Providence company which requires crane equipment, another Rhode Island concern which has received bids on various tools, and an East Boston manufacturer, which recently issued a list. The latter has secured a contract from a Bridgeport firm for tractors. The initial order is for 500. Production will probably begin in September at the rate of 50 per month. Drilling and grinding equipment will be required. Broaching tools have just been covered.

The demand for repair parts, such as drills, threaders, hack saw blades, etc., holds up well. Notwithstanding the improved call for drills, leading manufacturers have made a sharp reduction in prices, making it possible for jobbing houses to quote 70 and 10 per cent discount, the lowest price quoted within the memory of many of the local trade. The new discounts involved carbon as well as high speed drills. The call for garage equipment dropped to small proportions last month, and has not recovered.

The Boston Transit Commission rejected all bids submitted on a required engine lathe.

Bids are in for a two-story, 80 x 90 ft. manufacturing unit contemplated by the Visitor Printing Co., Providence, on Fenner Street and Pond Avenue.

The Monach Mfg. Co., Bellows Falls, Vt., plans the erection of a one-story paper mill, 80 x 100 ft.

Contract has been awarded by the Boston & Maine Railroad Co. for a one-story, 90 x 250 ft. repair shop at East Cambridge, Mass.

The equipment and plant of the Charlestown Machine Co., Charlestown, N. H., was sold at auction last week. Engine lathes, planers, milling machines, radial drills, and turret lathes were included in the equipment.

P. B. Mutrie, 11 Pearl Street, Dorchester, Mass., will build a new one-story automobile service building and repair department, 86 x 105 ft.

The Hygrade Lamp Co., Salem, Mass., manufacturer of electric lamps, etc., has filed plans for a new four-story plant, 50 x 100 ft.

A. Laurin, Pittsfield, Mass., is arranging for the operation of a local machine repair works, comprising the general repair and welding departments of the plant operated by John G. Rose, 45 Clapp Avenue, recently acquired. Mr. Rose will continue the plant for electrical repair work, cylinder grinding and kindred operations.

The Union Electric Light & Power Co., Farmington, Conn., is planning for enlargements in its hydro-electric power plant, to include the installation of a new generating unit and auxiliary machinery. A stock issue of \$50,000 will be sold to defray the cost of a portion of the work.

A vocational department will be installed in the new junior high school to be erected at Belmont, Mass., for which McLaughlin & Burr, architects, 88 Tremont Street, Boston, will prepare plans.

W. P. Hamblin, Inc., Providence, R. I., has had plans prepared for a new one-story automobile service works and repair shop, 65 x 190 ft. J. W. Foster, Springfield, Mass., is architect.

The Merwin Screw Co., Inc., Bridgeport, Conn., recently organized to manufacture machine screw products, has arranged for the operation of a plant at 143 Bennett Street. Fred H. Merwin is president and treasurer.

A vocational department will be installed in the proposed high school to be erected at Plainfield, Conn., estimated to cost about \$165,000. The School Plan Service Bureau, Inc., 152 West Forty-second Street, New York, is architect.

J. Edward Newton, treasurer of the Bernard Mfg. Co., Fall River, Mass., manufacturer of textile products, has acquired the plant of the Capitol Motors Corporation, Tiverton, R. I., as an individual enterprise. It is said that a

company will be organized, headed by Mr. Newton, to operate the works for the manufacture of automobile equipment.

The Middleton Motor Co., Danvers, Mass., has acquired property at Middleton, Mass., for a new two-story service building with repair shop.

Philadelphia

PHILADELPHIA, June 5.

The Pennsylvania Equipment Co., Norwood, Pa., is in the market for a second-hand water-cooled General Electric 1500 k.v.a. transformer to operate on 13,000 volts, three phase, 60 cycles.

Horace T. Potts & Co., 316 North Third Street, Philadelphia, Pa., manufacturers of iron and steel products, have filed plans for a new building at Erie Avenue and D Street, estimated to cost about \$90,000.

Controlling devices, electrical and other machinery will be installed in the new five-story printing plant, 80 x 120 ft., to be erected by the Thompson Printing Co., 312 Cherry Street, Philadelphia, estimated to cost about \$200,000.

The John A. Roebling's Sons Co., Trenton, N. J., manufacturer of wire rope, cables, etc., has arranged an improvement and extension program to cost about \$700,000, and to require about twelve months for completion. The work will include a rod mill, now under way, extensions in the power plant and other structures.

M. M. Fleron & Son, Inc., Trenton, N. J., recently organized with a capital of \$100,000 to manufacture radio equipment and supplies, has arranged for outside production for the present and apparatus for the new company will be manufactured by the Ingersoll-Trenton Watch Co., Pyroelectric Instrument Co. and the Star Porcelain Co., all of Trenton. Russell and Louis H. Fleron, 113 North Broad Street, head the new organization.

The Board of Freeholders, Court House, Camden, N. J., has plans under way for a new central power house for county service at Asyla, to cost about \$90,000.

A vocational department will be installed in the new two-story high school to be erected at Roebling, N. J. The Fowler-Seaman Co., Broad Street Bank Building, Trenton, N. J., is architect.

The Chamber of Commerce, Camden, N. J., is negotiating with a new company organized to manufacture typewriters and parts for a local site. It is proposed to establish a plant with initial space of about 40,000 sq. ft.

William C. Davis, Camden, N. J., care of Lackey & Hettie, 5 Hudson Street, architects, has awarded contract to A. H. Moorshead, 57 Laurel Street, Philadelphia, for a two-story automobile service building, 45 x 100 ft., with machine repair shop, on Haddon Avenue.

Motors and other equipment, conveying machinery, etc., will be installed in the four-story and basement plant, 100 x 140 ft., to be erected by the A. J. Reach Co., Tulip and Palmer streets, Philadelphia, manufacturer of sporting goods, estimated to cost about \$200,000. William W. Hibbert, Penfield Building, is engineer.

The Chantrell Hardware & Tool Co., Reading, Pa., has awarded contract to the Beard Construction Co., Reading, for a two-story addition. Alterations and improvements will also be made in the present works.

A vocational department will be installed in the new high school to be erected at Conshohocken, Pa., estimated to cost about \$135,000, for which bids are being received until June 19.

C. F. Dietrick, Pine Street, Williamsport, Pa., has plans under way for a two-story automobile service building and repair shop, 90 x 150 ft., estimated to cost about \$100,000.

The Binghamton Limestone Co., Binghamton, N. Y., E. E. Kellogg, treasurer, care of the Kellogg-Jones Co., O'Neil Building, has plans under way for a new plant at Montrose, Pa., comprising several one-story buildings for crushing, grinding, screening, etc.

The General Refractories Co., Oliver Building, Pittsburgh, is negotiating for the purchase of the plant of the Pennsylvania Fire Brick Co., Beech Creek, Pa. The plant will be continued in operation and number of extensions and improvements made.

Fire, May 24, destroyed the coal breaker at the plant of the Eastpoint Coal Co., Pond Creek, Pa., with loss estimated at about \$50,000, including equipment. It is planned to rebuild.

The Greenville Steel Car Co., Greenville, Pa., is planning for the installation of a 10-ton traveling crane.

Motors, controlling devices and other equipment will be installed in the three-story and basement printing plant, 60 x 130 ft., to be erected at Fourth and Church streets, Easton, Pa., by the Easton Daily Express, 26 North Fourth Street, estimated to cost about \$155,000. A. D. Chidney, Jr., 541 Northampton Street, is architect.

The Bloomsburg Locomotive Works, Bloomsburg, Pa., recently organized under State laws, is reported to be arranging for operations at the local plant of the Bell Locomotive Co. W. R. Kocher, Bloomsburg, is treasurer.

The Bethlehem Motors Corporation of New York, Allentown, Pa., recently organized to take over the plant of the Bethlehem Motors Corporation, bankrupt has made a payment of \$475,000 for the works, lately acquired at a receiver's sale, and will immediately begin operations. Improvements will be made and machinery repaired. Production will be devoted to motor trucks and parts, and it is expected to give employment to more than 500. H. B. Hall is president; E. H. Leland, vice-president and treasurer, and W. H. Rodgers, assistant treasurer.

F. Romano, 819 Fitzwater Street, Philadelphia, is taking bids for the construction of a one-story forge and machine shop on Addison Street, near Eighth Street. Michael Capobianco, 764 South Seventh Street, is architect.

The Philadelphia Paper Mfg. Co., River Road, Philadelphia, has awarded a contract to the Hughes-Foulkrod Co., Commonwealth Building, for a new plant at Nixon, Fountain and Umbria streets, to cost about \$60,000.

The Pennsylvania Railroad Co., Eighteenth and Filbert streets, Philadelphia, is said to be arranging for the purchase of a number of traveling cranes, about 15 tons each, in connection with extensions to its car and locomotive shops at Altoona, Pa.

The Gera-McGinley Co., 1708 Ludlow Street, Philadelphia, manufacturer of tin and other roofing products, has acquired the three-story building at 218 North Thirteenth Street, with four-story structure in the rear, and will occupy the property after alterations are made.

Chait & Brodsgal, Philadelphia, have purchased the Womore Garage at 6135-43 Cedar Avenue, on site 110 x 125 ft., for the establishment of an automobile service and machine works.

Horace V. MacFadyen, acting purchasing agent of the city of Philadelphia, room 312, City Hall, will take bids until June 12, for iron castings for municipal service for the period from July to December, 1922.

A new power house will be constructed by the Board of Directors, Westmoreland Hospital, Greensburg, Pa., in connection with additions to the institution to cost about \$500,000. Edward P. Mellon, 52 Vanderbilt Avenue, New York, is architect.

M. A. Messinger, Allentown, Pa., formerly connected with the Bee Automobile Co., will establish new machine works at 149 South Fourth Street, Easton, Pa., for automobile repairs, parts manufacture, cylinder grinding, etc. W. B. Grazer, Scranton, Pa., is interested in the enterprise.

The Central Construction and Supply Co., Philadelphia, refrigerating engineers and contractors, and not manufacturers as stated in THE IRON AGE of May 25.

Chicago

CHICAGO, June 5.

With the exception of one dealer whose bookings for May were heavy because of two large individual orders, local sellers report that the month just closed showed total sales about equal to those of April. In fact, the figures for May were a disappointment, as it had been expected that an improvement over the preceding month would be registered. It is probably true that the increasing number of inquiries which came out in May, gave the market an appearance of greater activity than the orders actually showed. As June opens, even the volume of inquiry is falling off and sentiment in the trade is less cheerful. It is to be noted, however, that variations in the demand are experienced even in the most active periods, and the fact that interest lags one week does not necessarily indicate that succeeding weeks will also be dull.

There are numerous inquiries, both railroad and industrial, still pending and when these are closed considerable business will be written in the books of local machine tool houses. A steel company, which put out an inquiry for a 3-ft. radial drill, 27-in. engine lathe, 24-in. shaper and several other machines about a month ago, is at the point of buying. The Studebaker Corporation, South Bend, Ind., is expected to place large orders for equipment this month. The lists of the Illinois Central, Santa Fe, and the Burlington are still pending with the possibility that they may be closed in June or July. The Rock Island is also working on a list, but it is unlikely that it will be issued before July. Word comes from St. Louis that the Wabash has issued a list, but little of this business is expected to be placed with Chicago dealers.

Permits were taken out in Chicago in May for 1273 buildings, involving 39,331 ft. of frontage and a cost of \$27,029,650, surpassing in cost by \$829,150 the best previous

record—in August, 1911—when permits involving \$26,200,500 were issued. In April, 1922, 1315 permits were issued involving 38,077 ft. and a total cost of \$17,076,560, while a year ago—May, 1921—only 845 permits were granted involving \$2,967,750.

The South Bend Lathe Works, South Bend, Ind., has made a reduction on lathes, effective June 1, ranging from 10 to 15 per cent. A 15 per cent reduction is made on 9, 11, 13, 15 and 16-in. lathes, 10 per cent on 18-in. and a slight reduction on 21 and 24-in. lathes.

David H. Smith and son, J. William Smith of the Brazil Novelty Works, Brazil, Ind., have leased the foundry building of the former Crawford & McCrimmon plant and will enlarge their business, branching out into the manufacture of wheelbarrows, freight trucks, handles for various tools, etc.

The Chicago Macaroni Co., 3148 Canalport Avenue, Chicago, has let contract for a three-story plant, 60 x 88 ft., at 2104-14 South Sangamon Street, to cost \$47,000.

The K. I. Willis Corporation, 206 Eighteenth Street, Moline, Ill., recently incorporated with \$100,000 capital stock, is a reorganization of the Willis & Sons Co. It will continue to manufacture sheet metal specialties and to take contracts for indirect heating and ventilating equipment and furnace installation. A year ago the company bought an adjoining plant which it remodeled and enlarged. The present plant is 75 x 90 ft., part two stories. Further additions are not contemplated at present. The officers are K. I. Willis, president and general manager; J. A. Kittleson, vice-president; J. A. Gerwen, secretary, and O. L. Erickson, treasurer.

The Pfanstiehl Radio Service Co., Highland Park, Ill., recently incorporated with \$20,000 capital stock, contemplates the manufacture of radio parts and will probably lease a plant. The officers are Carl Pfanstiehl, president; Edmund H. Eitel, vice-president; George R. Jones, secretary and treasurer.

The Lalor Mfg. Co., 1324 McKinley Avenue, Chicago Heights, Ill., recently incorporated with \$60,000 capital stock, has leased the plant formerly known as the Lalor Wagon Works and will manufacture truck bodies and woodwork specialties. It is not in the market for additional equipment at present. The officers are M. H. Lalor, president and treasurer; H. A. St. Clair, vice-president and manager; and O. P. Yanson, secretary.

The Sinclair Oil Co. has purchased a tract of 100 acres 11 miles north of Joliet, Ill., and will erect a refinery to cost \$2,500,000.

The Biflex Products Co., manufacturer of automobile bumpers, North Chicago, Ill., has purchased foundry No. 5 of the Chicago Hardware Foundry Co. The structure stands next to the present plant of the company and will enable it to expand its production. The Chicago Hardware Foundry Co. will build a new foundry to take the place of the one sold, and will also erect an addition to its porcelain enameling plant to cost \$30,000.

The Belle City Malleable Iron Co., Racine, Wis., contemplates the construction of a new plant and improvements to cost \$750,000.

S. H. Johnson & Sons, varnish manufacturers, Racine, Wis., will erect three new buildings to cost \$200,000.

The American Seating Co., Grand Rapids, Mich., will construct a 2000-hp. power plant and a four-story warehouse to cost \$600,000.

Clarence, Walter and James Christl have opened a machine shop at 2221-23 South Adams Street, Peoria, Ill., and will manufacture a Ford lock, an invention of their own, and also conduct a general machine shop business.

The Western Radiator Corporation has commenced the erection of a plant at Casey, Ill.

The Chicago Union Station Co., 600 West Jackson Street, Chicago, has arranged for the sale of a bond issue of \$6,150,000, a portion of the proceeds to be used for a new power plant. J. J. Turner is president.

Fire, May 29, destroyed a portion of the plant of the Elaborated Ready Roofing Co., 4417 Wentworth Avenue, Chicago, with loss estimated in excess of \$75,000.

The Radio Telephone Co., 160 North Wells Street, Chicago, recently organized, has tentative plans for leasing a factory to manufacture loud speakers and other wireless equipment. William G. Keith is president and P. S. Bear general manager.

The Russell Electric Co., 140 West Austin Avenue, Chicago, manufacturer of electrical equipment, has removed its plant to 340 West Huron Street, where space will allow for considerable increase in capacity. It has increased its capital to \$100,000 for expansion. T. C. Russell is president.

A vocational department will be installed in the new two-story high school to be erected at Chariton, Iowa, estimated

to cost about \$225,000, for which bids on general contract are being received until June 13. William Gordon, 519 Hubbell Building, Des Moines, Iowa, is architect.

The Siems-Stembel Co., 514 Guardian Life Building, St. Paul, Minn., operating railroad car repair works, will build a new one-story shop, 230 x 750 ft., on Como Avenue, estimated to cost about \$75,000.

The Southern Illinois Light & Power Co., Hillsboro, Ill., is arranging for a bond issue of \$1,200,000, the proceeds to be used for a new generating plant and other extensions and improvements. Headquarters are in the Cenertal National Bank Building, St. Louis.

F. W. Tyler, 827 N Street, Lincoln, Neb., has plans under way for the erection of a new machine shop, 50 x 50 ft.

Nathan Leonard, Chicago, manufacturer of metal stampings, etc., has leased a floor, 30 x 150 ft., at 4642 Ravenswood Avenue, for a new plant.

A vocational department will be installed in the new two-story high school to be erected at Norfolk, Neb., estimated to cost in excess of \$200,000.

A vocational department will be installed in the new three-story and basement high school to be erected at Hibbing, Minn., estimated to cost close to \$800,000. W. T. Bray, Terry Building, Duluth, Minn., is architect.

The Refrigerating Specialties Co., 9 South Clinton Street, Chicago, manufacturer of ice and refrigerating machinery, has acquired a factory at Sacramento Boulevard and Lexington Street, 75 x 125 ft., and will take immediate possession for the establishment of a new plant. Charles C. Hansen is president.

The Fries-Malwitz Motor Co., 4001 Irving Park Boulevard, Chicago, has plans under way for a new two-story service building, 122 x 215 ft., with machine shop, to cost about \$250,000. Jens J. Jensen, 4815 North Lawndale Avenue, is architect.

Cleveland

CLEVELAND, June 5.

Activity in the Detroit automobile field is stimulating the demand for machine tools. While no round lot sales were reported the last week, many automobile companies and allied industries are adding to their equipment by placing orders for one or two machines. It is understood that the Ford, Dodge and Studebaker plants will run at capacity for the next three months. The demand for automatic screw machines is steadily growing, orders coming principally from the automotive industries. The Ford Motor Co. has purchased 27 molding machines from a Cleveland manufacturer. Makers of brass plumbing goods are very busy as a result of the activity in the building field and are buying considerably new equipment. One local manufacturer sold during two days last week in single orders, nine small turreted lathes to makers of plumbers' brass goods.

In the railroad field orders for two large machines were placed the last week, the Wheeling & Lake Erie Railroad buying a 48-in. car wheel boring machine and the Nickel Plate road a 48-in. 400-ton double end wheel press. Inquiries are beginning to come from steel companies for large machines for shop equipment, and some Akron rubber companies are also coming into the market for additional equipment. The Warren, Ohio, Board of Education has purchased six or eight machines asked for in its recent list.

The Cleveland Board of Education will receive bids July 3 for about 30 metal and woodworking tools for the Audubon, Patrick Henry, and Rawlings, junior high schools. The list, which will be sent out early this week, includes the following:

- Three saw benches.
- Two 30-in. bench saws.
- Two 12-in. hand jointers.
- Two combined oil stone grinders.
- Two 11-in. x 3-ft. bed quick-change gear lathes.
- Two 10-in. sensitive bench drill presses.
- Two 2-wheel grinders.
- Two 30-in. squaring shears.
- Two 30-in. bar folding machines.
- Two combination punch and shearing machines.
- Two 30-in. forming rollers.
- Two burring machines.
- Two turning machines.
- Two wiring machines.
- Two hand forges.
- One 30-in. x 7-in. cabinet planer.
- One hollow chisel mortiser.
- One 8-in. sander.

Considerable small miscellaneous equipment is also included in the list. Motor equipment is specified for the tools.

The Cleveland Crane & Engineering Co., Wickliffe, Ohio, has taken an order for two 10-ton double trolley and one

5-ton hand-power cranes for the Cia de la Fabricas de Papel de San Rafael, Mexico.

It is reported from Akron, Ohio, that the Blake Fitchburg Pump Co., Fitchburg, Mass., will move to Akron where it will manufacture its line of pumping machinery. A new Ohio corporation with a capital stock of \$350,000 is proposed.

Fire destroyed the iron foundry of the National Sanitary Co., Salem, Ohio, June 3, with an estimated loss of \$90,000, covered by insurance. C. G. Burton is manager.

Pittsburgh

PITTSBURGH, June 5.

If orders for machinery and equipment were in proportion to inquiries, this market would be decidedly satisfactory. However, inquiries are very much more frequent than orders and the only satisfaction derived is that buyers are interested. Prospective crane business is especially good. There are four distinct projects upon which engineering companies are engaged and prices have been asked on an aggregate of 103 cranes for these jobs. One such inquiry, referred to in THE IRON AGE of May 18, calls for 70. Others are calling for 15, 10 and 8, respectively. None of these is in connection with the new tube mills of the National Tube Co., Gary, Ind., which when completed will contain more than 100 cranes of various sizes and types. That company as yet has not issued the formal inquiry for the cranes and other equipment for this plant, but the belief is current that the initial inquiry will be comparatively small. It is understood that the plan is to complete the finishing units first and to install the blast furnaces and steel-making furnaces later; in the meantime it will draw upon one of the Chicago district plants of the corporation for supplies of steel.

Other live crane prospects include three 15-ton mill type overheads for a maker of strip steel; one 10-ton overhead for a steel spring manufacturer; six 15-ton cranes and 30 2-ton cranes, all wide spans, for the Altoona shops of the Pennsylvania Railroad, while the Greenville Steel Car Co., Greenville, Pa., has not yet acted on a 10-ton crane. Hoist inquiries still are numerous, a new one being for a 7½-ton heavy-duty mill type monorail hoist for the Follansbee, W. Va., plant of the Follansbee Brothers Co. The Columbiana Foundries Co., which has about completed a reorganization involving a change from an Ohio to a Pennsylvania charter and an increase in capital from \$300,000 to \$600,000, later will want a hoist in connection with an extension to its McKeesport, Pa., works, to which the new funds largely will be applied.

The Northern Engineering Works, Detroit, recently took the order for a 50-ton, 2-motor, 30-ft. span crane with two 25-ton trolleys for the Northern New York Utilities, Inc., Watertown, N. Y. The Carl J. Kalman Co., Chicago, has placed an order for its Youngstown plant for a 6-ton, 5-motor, 2-trolley, 65-ft. 4-in. span crane and a 5-ton, 3-motor, 45-ft. span crane with the Milwaukee Electric Crane & Mfg. Co. The National Tube Co. has closed for a 10-ton overhead for the galvanizing department of its Lorain, Ohio, works.

In machine tools, daily sales reach a fairly good aggregate. Inquiries are numerous enough, though rarely calling for more than one or two tools. An engineering company, specializing in glass works construction, is asking for prices on a number of tools for a new project, but details are withheld. The Standard Steel Spring Co., Coraopolis, Pa., is in the market for a shaper. One house reports the sale of a 16-in. lathe for shipment to West Virginia, and a 36-in. Niagara squaring shear to an Allegheny Valley sheet maker.

A two-story automobile service and repair building, 85 x 92 ft., to cost about \$50,000, will be erected by the Haller Baking Co., 206 North Denniston Street, Pittsburgh. F. C. Haller is president and general manager.

The Bradford Refining Co., Newell Building, Bradford, Pa., will soon commence the construction of a new oil refinery in the Foster Brook section.

The Board of Education, Fulton Building, Pittsburgh, is planning for the installation of wood-working and other mechanical equipment in the manual training departments of a number of schools, now in course of construction.

The Harris Pump & Supply Co., 320 Second Avenue, Pittsburgh, will occupy six floors of the adjoining building, 316-318 Second Avenue, for extensions.

The Titusville Iron Works, Titusville, Pa., is arranging a list of equipment for installation in its proposed addition on South Perry Street.

The Hough Coal Co., Lumberport, W. Va., is considering plans for rebuilding the portion of its tipples recently destroyed by fire.

The Pleasant Valley Automobile Co., Wheeling, W. Va.,

has awarded contract to Ogden & Bauer, Wheeling, for a new one-story service building, 135 x 225 ft., with machine repair shop, estimated to cost about \$100,000, including equipment.

Vocational departments will be installed in the new high schools to be erected at Brown and Wallace, W. Va., by the Sardis School District, Sardis, Pa.

The Redstone Township Board of Education, Republic, Pa., is arranging a list of equipment for installation in the vocational department at the high school in Redstone Township.

Ray E. Matticks, Logan, W. Va., has plans under way for a one-story automobile service building, with machine repair shop, 50 x 250 ft., on site, recently purchased.

Detroit

DETROIT, June 5.

The Hupp Motor Car Co., 3501 East Milwaukee Street, Detroit, has awarded a contract to the Everett-Winters Co., Book Building, for two four-story additions, 52 x 396 ft., and 80 x 397 ft., estimated to cost in excess of \$350,000. Charles D. Hastings is president.

The Board of County Trustees, Jackson, Mich., is having plans prepared for an electrically-operated pumping plant on the municipal farm, for auxiliary service. W. L. Arnold is engineer.

The Burton Auto Top Co., Woodward Avenue and Canfield Street, Detroit, has filed plans for a new one-story plant at 60 West Canfield Street, to cost about \$25,000.

Officials of Durant Motors, Inc., 1819 Broadway, New York, and of the Durant Motor Corporation of Michigan, have organized a new subsidiary, the Flint-Durant Corporation, capitalized at \$200,000, with headquarters at Flint, Mich., to handle certain features of Durant automobile production. W. C. Durant is president, and G. E. Pomeroy, secretary and treasurer.

A vocational department will be installed in the new two-story high school to be erected at Stevensville, Mich., estimated to cost close to \$100,000. E. S. Batterson, Hanselman Building, Kalamazoo, Mich., is architect.

The Gray Motor Co., Mack Street, Detroit, will commence the immediate erection of a one-story addition, estimated to cost close to \$50,000.

The Modern Machine Tool Co., Jackson, Mich., has acquired the plant and business of the Sprague-Hayes Mfg. Co., Jackson, manufacturer of mechanical specialties.

Cincinnati

CINCINNATI, June 5.

Local machine-tool manufacturers are well satisfied with the trend in the machine-tool industry. While business has been at times spotty, the improvement generally has been steady and has lasted over a sufficient period to look forward with confidence to the future. Local manufacturers have been participating extensively in most of the larger purchases made and with orders for single machines being booked the industry is in better position to-day than it has been for the past 18 months. Inquiries are increasing and are coming from all branches of industry. Railroad companies have been fair buyers and some good orders have been booked from the automotive field, with others now being negotiated. The steel industry has taken a number of the heavier machines, such as punches and shears, and car-building concerns have also been buyers. Development of the radio industry has created a heavy demand for smaller tools, and a local manufacturer of drilling machinery recently booked an order for 52 machines from one large electrical company. Used tool dealers report fair activity, coming largely from smaller shops throughout the country. With the exception of the lists published last week, local manufacturers state that inquiries generally run to one and two tools. It is reported that the General Motors Corporation will shortly be in the market for a considerable number of tools, as it is expected that production work will be started in the near future on a new air-cooled motor car.

The merger of the Gem City Machine Co., Dayton, and the Steel Products Engineering Co., Springfield, Ohio, mention of which was made some months ago, has been completed. The companies will operate under the name of the Steel Products Engineering Co. and the plant will be located at Columbia Street and Dakota Avenue, Springfield. It will manufacture tool grinders, shapers, special tools, jigs and dies, and will also do special engineering work, such as designing and building special tools for production purposes. The officers are J. E. McAdams, president and treasurer; S. L. Tatum, vice-president; Edward E. Burkhart, secretary.

The Victor Products Co., Springfield, Ohio, manufacturer of automobile accessories, has purchased the plant of the

Excelsior Drill Co., East Columbia Street, and will occupy the building about Oct. 1.

The Springfield Mfg. Co., Springfield, Ohio, has been incorporated with a capitalization of \$25,000 to manufacture steel teeth rings for starters on automobile flywheels. The plant is at 221 West Main Street, and it is expected that production will commence June 15. Gustave A. Bauer heads the company.

The Buffalo-Springfield Roller Co., Springfield, manufacturer of road-building and street sweeping machinery, has awarded contract to the Bellefontaine Bridge & Steel Co. for an addition, 90 x 150 ft., to be used as an assembling floor for the motor sweeper being built by the Springfield Motor Sweeper Co., a subsidiary.

The Dayton Bronze Bearing Co., Dayton, Ohio, has leased a portion of the former Platt Iron Works plant and is now located in its new quarters.

The O. K. Plating & Mfg. Co., East Court Street, Cincinnati, suffered damages of \$15,000 through fire which practically destroyed its plant on May 30.

A loss of \$15,000 was caused by a fire in the plant of the Anchor Brass & Aluminum Co., Freeman Avenue, Cincinnati, on May 31. The chief damage occurred in the pattern shop, practically all of which was burned.

Buffalo

BUFFALO, June 5.

The Industrial Motors Corporation, Rochester, N. Y., has been organized under Delaware laws with 1,000,000 shares of stock, no par value, to take over the plants and businesses of the Selden Motor Vehicle Co., Probert Street, Rochester, and the Atlas Truck Corporation, York, Pa., both specializing in the manufacture of motor trucks and parts. Other companies, it is said, will be included in the merger, among these being the Martin-Parry Co., York, Pa., manufacturer of automobile bodies. The consolidated company will continue the operation of the individual plants, with enlargements for greater output. George C. Gordon, president of the Selden company, and John J. Watson, Jr., president of the Atlas company, will head the new corporation. The latter is also president of the Lee Tire & Rubber Co., and vice-president of the International Agricultural Corporation.

Morrey & Co., 42 Cortlandt Street, Rochester, manufacturers of sheet-metal products, roofing, etc., will take bids at once for a new one and two-story plant at Glasgow and Exchange streets, 58 x 86 ft. William J. Morrey is head.

The Morley Machine Corporation, 800 St. Paul Street, Rochester, is planning for the installation of lathes and other machine tools.

The David Fitzgibbons Boiler Corporation, Oswego, N. Y., has been incorporated with a capital of \$100,000, to take over and operate the plant and business of the Fitzgibbons Boiler Co., Tenth and Mercer streets. It will build a one-story addition to cost about \$40,000. The new organization is headed by D. P. M., and J. A. Fitzgibbons.

The Defiance Paper Co., Walnut Avenue and Second Street, Niagara Falls, N. Y., is planning for the erection of an addition to cost about \$200,000, including equipment. Machinery will be provided for the employment of about 100 additional men.

A. D. Collier, Clyde, N. Y., is organizing a company to construct and operate a local cold storage and refrigerating plant, estimated to cost about \$175,000, with equipment.

The City Commission, Buffalo, has authorized a call for bids for a mechanical reduction plant for city refuse, 250 tons in capacity, to be received on June 26, including complete machinery and electrical equipment. Commissioner Kreinheder is in charge.

The De Zeng-Standard Co., East State Street, Camden, N. J., manufacturer of optical and surgical instruments, has plans under way for a branch plant at Geneva, N. Y., to cost about \$50,000.

The Philadelphia Battery Co., Waverly, N. Y., care of C. W. Smith, Waverly, architect, has plans under way for the erection of a new factory on Fulton Street, to cost about \$40,000.

A vocational department will be installed in the new high school to be erected at Hamburg, N. Y., estimated to cost about \$200,000. A. C. Parsons is president of the Board of Education, in charge.

The Wallington Cold Storage Co., Wallington, N. Y., will commence the immediate erection of a new three-story cold storage and refrigerating plant, 100 x 120 ft. C. A. Wagner, 12 Amherst Street, Rochester, is architect.

Gere & Willis, 320 West Genesee Street, Syracuse, N. Y., are planning for a one-story automobile service works, and repair shop, 60 x 260 ft., to cost about \$100,000, including equipment.

Baltimore

BALTIMORE, June 5.

The Bureau of Supplies and Accounts, Navy Department, Washington, is taking bids until June 20, for the following equipment for the naval shops at San Diego: Schedule 9684, five milling machines; schedule 9685, one buffing and polishing machine, two upright sliding head drills, one plain radial drill, two emery grinders, two wet tool grinders, one universal cutter and reamer, and two power hack saws; schedule 9691, three motor-driven crank shapers, one motor-driven centering machine, one planer, and one drilling machine; schedule 9692, 12 motor-driven lathes.

The Charles Warner Co., Wilmington, Del., has acquired the plants and properties of the American Lime & Stone Co., at Tyrone, Bellefonte and Hollidaysburg, Pa., with holdings said to be valued at \$3,000,000. The new owner has disposed of a bond issue of \$1,100,000, to provide for the purchase and extensions. Charles Warner is president.

The Cook Drum Motor Co., 519 West Fourth Street, Charlotte, N. C., has acquired the equipment and property of the Cotton States Wagon & Auto Co., for the establishment of a plant to manufacture automobile parts and equipment. I. N. Cook is president.

The Bureau of Yards and Docks, Navy Department, Washington, has plans in progress for an addition to the power house at the Mare Island Navy Yard, San Francisco, Cal.; and for the installation of coal and ash-handling equipment at the naval base, Hampton Roads, Va.

The Wilmington Sugar Refining Co., Christiana Avenue and B Street, Wilmington, Del., will soon commence the erection of the main mill at its new plant, to be five stories, 100 x 200 ft., and estimated to cost about \$800,000, including machinery. W. J. Wayte, Inc., 125 East Forty-sixth Street, New York, are engineers.

The Appalachian Power Co., Roanoke, Va., with headquarters at Bluefield, W. Va., is arranging for a new preferred stock issue of \$4,000,000, a portion of the proceeds to be used for extensions and improvements.

The American Mica Mining Corporation, Waynesville, N. C., is planning for the installation of machinery and power equipment for a new plant to include punches, shears, motors, etc. Harry M. Hall, secretary, is in charge.

Fire, May 23, destroyed the main building at the plant of the Case-Fowler Lumber Co., Macon, Ga., with loss estimated at \$75,000, including machinery.

The Roaring Springs Marl Lime Co., Gloucester, Va., is planning for the installation of hoisting engines and other equipment at its property. R. M. Janney is general manager.

A vocational department will be installed in the new two-story and basement high school, 125 x 175 ft., to be erected at Reidsville, N. C., estimated to cost about \$300,000. W. C. Northup, Wachovia Bank Building, Winston-Salem, N. C., is architect.

The Board of Awards, Department of Agriculture, Washington, will receive bids until June 27, for the installation of a 300-hp. boiler and auxiliary equipment at the department power plant.

The Chincoteague Ice Co., Chincoteague Island, Va., is planning for the erection of a new ice-manufacturing and cold storage plant.

The Maryland Motors, Inc., 601 St. Paul Street, Baltimore, has authorized Mottu & White, architects, 324 North Charles Street, to prepare plans for a three-story automobile service building, 80 x 110 ft., with repair department, at 414 North Calvert Street, to cost about \$75,000.

A vocational department will be installed in the two-story and basement high school to be erected at Concord, N. C., estimated to cost about \$150,000. C. G. Sayre, Anderson, S. C., is architect.

The Rutledge Oil Mill Co., Madison, Ga., is considering plans for rebuilding the portion of its plant, including power house, recently destroyed by fire, with loss estimated at about \$100,000, including machinery.

Penny & Long, Inc., Greensboro, N. C., has awarded contract to J. L. Crouse, Greensboro, for a one-story automobile service building with repair department, 105 x 150 ft., to cost about \$40,000. R. J. Mebane is treasurer.

A one-story power house will be built at the plant of the Clinch Valley Blanket Mill, Inc., Cedar Bluff, Va.

The Common Council, West Point, Ga., has plans under way for extensions and improvements in the municipal electric power plant. New equipment will be installed.

The Common Council, Jackson, N. C., will commence the immediate erection of a one-story municipal electric power plant and distributing system.

The Huddleston Mahogany Co., Norfolk, Va., has leased the plant of the Greenleaf-Johnson Co., for a new hardwood manufacturing works. Extensions will be made and

present buildings remodeled. Electrical and other machinery will be installed.

The Davis Foundry & Machine Works, manufacturer of turbine water wheels, etc., Rome, Ga., is in the market for a 10-14-ft. boring and turning mill.

Indiana

INDIANAPOLIS, June 5.

The Studebaker Corporation, South Bend, Ind., is taking bids for a two-story assembling works, 72 x 156 ft.; one-story sheet-metal working plant, 50 x 97 ft., and one-story storage building, with loading shed. Albert Kahn, 1000 Marquette Building, is architect.

Officials of the Dodge Mfg. Co., Mishawaka, Ind., manufacturer of transmission machinery, etc., have organized the Seabrook Phonograph Corporation, with capital of \$100,000, to manufacture talking machines and parts. It is headed by Melville W. Mix, Kenyon W. Mix and W. W. Dodge.

Fire, May 28, destroyed the mills and machinery of the Voorhees Lumber Co., Frankfort, Ind., with loss estimated at close to \$125,000. It is planned to rebuild.

The Icenomor Electric Refrigerator Co., Evansville, Ind., manufacturer of electrically operated refrigerators and parts, will occupy at once the plant of the Shimer Steel & Wire Co., for new works. The main building is 50 x 210 ft., with a number of smaller structures, and power house, adjoining. Present production will average about 100 machines a month, and it is expected to increase this output at an early date. E. D. Pellegrin is president.

A vocational department will be installed in the two-story junior high school to be erected at Richmond, Ind., for which bids are being taken until June 15. Perkins, Fellows & Hamilton, 814 Tower Court, Chicago, are architects.

The Lafayette Motors Corporation, Indianapolis, has been organized under Delaware laws with capital of \$7,000,000, to take over the Lafayette Motors Co., with plant in the Mars Hill section. A stock issue will be arranged to provide for expansion and working capital. The proposed consolidation with the Pierce Arrow Motor Car Co., Buffalo, N. Y., has been abandoned. The present management will be continued, and officials of the Nash Motors Co., Milwaukee, will be prominent factors in the new company.

The Indiana & Michigan Electric Co., South Bend, Ind., will commence the immediate erection of an addition in its power plant to provide an increase of about 15,000 hp. capacity, estimated to cost in excess of \$1,000,000, including line extensions.

The Acme Works, Inc., Indianapolis, manufacturer of castings, will build a one-story addition to its plant at Delaware and Ohio streets. Peter Lambartous is president.

Milwaukee

MILWAUKEE, June 5.

Slow but substantial progress is being made by the machine-tool industry. Business in May was uniformly the best of any of the past 24 months, and June was entered with more inquiries than at any time since the summer of 1920. In the last 30 days local tool builders have been able to effect a moderate gain in production, although plant schedules are still far below normal, especially among makers of milling machines. There are prospects of some fair-sized business from railroad sources, while buying by the automotive industries is well sustained. Although requirements are being placed only for bare necessities, the trade has confidence in the future, due to the steadily increasing inquiry for new tools against used equipment.

The Claybourn Process Corporation, Menasha, Wis., manufacturer of printing and lithographing machinery and equipment, is locating its plant in Milwaukee and will invest approximately \$500,000 in new buildings, machinery, etc. A site of 10 acres at Humboldt and Keefe avenues has been purchased for \$40,000. Herman J. Esser, architect, 82 Wisconsin Street, Milwaukee, has been engaged to design a one-story brick and steel manufacturing building, 115 x 200 ft., to contain one 3-ton and one 10-ton electric traveling cranes; a power and boiler house, 30 x 80 ft., with steel stack; and a storage, warehouse and office building, 100 x 180 ft. Bids are being taken and contracts will be awarded this week.

The J. L. Austin Mfg. Co., Milwaukee, has been incorporated with a capital stock of \$50,000 as successor to a firm of similar title which for several years has been manufacturing grinders and grinding machinery and hardware specialties at 419-423 Van Buren Street. It contemplates the erection of a new shop on a new site, but details are not yet available. J. Leonard Austin is president.

The Board of Education, South Milwaukee, Wis., is taking bids for remodeling the first floor and basement of the First Ward school building into a vocational and industrial training institute, which will require a miscellaneous list of equipment, to be purchased later. Alex Stosick is secretary of the board.

The Belle City Incubator Co., Racine, Wis., has started work on a two-story brick and concrete addition, 135 x 146 ft., to accommodate its sheet metal and hardware production departments. This will give the company 600,000 sq. ft. devoted to the manufacture of a single, standardized style of incubator and brooder. The investment in the present extensions will be about \$80,000, including equipment. James V. Rohan is president and general manager.

The Donald Sales & Mfg. Co., 259 South Water Street, Milwaukee, manufacturer of plating and polishing equipment, has incorporated under the same name, with a capital stock of \$50,000. The ownership and management remains vested in Henry R. and Arthur J. Donald. James T. Guy is attorney. Enlargement of the business and extension of production facilities is planned during the summer.

The U. S. Tractor & Machinery Co., Menasha, Wis., has plans for its proposed new foundry, to be erected at a cost of \$50,000, and will take bids about June 15. It will be 50 x 200 ft., of brick and steel. Inquiry is being made for smelting and casting equipment. S. D. Harris is vice-president and works manager.

The Valley Paper Mills Co., Neenah, Wis., expects to let contracts this week for its new \$800,000 paper and pulp manufacturing group, designed by Edward A. Wettengel, architect, Appleton, Wis. The main mill will be 80 x 550 ft., one, two and three stories, of brick, steel and reinforced concrete; the power plant, 60 x 165 ft.; and the warehouses and finishing building, 80 x 375 ft. George W. Burnside is secretary and general manager.

The Wetmore Mechanical Laboratories, 129 Michigan Street, Milwaukee, have been incorporated as the Wetmore Mechanical Laboratory Co., with a capital stock of \$5,000, by C. P. Wetmore and associates, who established the business following their retirement from the Wetmore Reamer Co., 62-68 Twenty-seventh Street, Milwaukee, last fall. The Wetmore Reamer Co. succeeded the original Wetmore Mechanical Laboratory Co.

The Gulf States

BIRMINGHAM, June 5.

The Richardson Co., Cincinnati, Ohio, manufacturer of roofing products, affiliated with the Century Roofing Co., New Orleans, is planning for the erection of an addition to the works of the latter company to cost about \$500,000, including machinery. Robert B. Richardson, Cincinnati, is manager in charge.

The City Council, Lafayette, Ind., is planning for an addition to its municipal electric power plant, estimated to cost about \$125,000.

Fire, May 28, destroyed a portion of the distributing plant of the Magnolia Petroleum Co., Fort Worth, Tex., with loss estimated in excess of \$250,000.

The Southern Ice & Utilities Co., Texarkana, Tex., has plans under way for a new ice-manufacturing and cold storage plant to cost approximately \$150,000.

Fire, May 25, destroyed the saw mill, planing mill and other buildings at the plant of the Swift Lumber Co., Knoxville, Miss., with loss estimated at about \$100,000, including machinery. It is planned to rebuild.

Victor Kolstrom & Co., Inc., Verbena, Ala., recently organized, has plans under way for the establishment of a factory to manufacture collapsible boats, with repair works.

A vocational department will be installed in the new high school to be constructed at Sherman, Tex., estimated to cost about \$100,000, bonds for which have just been voted. J. S. Ellingson is city manager.

The Common Council, West Palm Beach, Fla., is planning for the installation of a new high pressure pumping plant, with electric-driven pumps and auxiliary machinery, estimated to cost about \$100,000, with distributing system.

The Branford Lumber Co., Branford, Fla., is planning to rebuild its planing mill and other buildings, recently destroyed by fire with loss of about \$100,000, including machinery.

The Texas Ice & Cold Storage Co., Dallas, Tex., has tentative plans under way for a new ice-manufacturing and cold storage plant with initial capacity of about 125 tons a day.

J. H. Sharp, president First National Bank, Troup, Tex., and J. B. Andrews, Rusk, Tex., have organized a company to build and operate a new hardwood mill, on the Trinity River, near Palestine, Tex., estimated to cost in excess of \$75,000, with machinery.

The Prairie Refinery Co., Grand Prairie, Tex., has con-

struction under way on a new refinery estimated to cost close to \$50,000. I. B. Walker is president.

The Canton Ice Co., Canton, Miss., is planning to rebuild the portion of its plant, recently destroyed by fire. New machinery will be installed.

The Board of Directors, St. Edward's College, Austin, Tex., has commissioned A. W. Harris, Austin, architect, to prepare plans for a new power plant to cost about \$10,000.

Motors and other mechanical equipment will be installed in the new printing plant to be established by the Boyd-Patterson Co., Inc., 1323 Wood Street, Dallas, Tex., recently organized. It has leased a building and will commence the installation of machinery at an early date. G. P. Edgell is president.

The Common Council, Artesia, Miss., has tentative plans under consideration for a municipal electric power house. The Chamber of Commerce is interested in the project.

The Kerens Independent School District, Kerens, Tex., has approved a bond issue of \$95,000, for the construction of a new high school, to include vocational department. Plans will be prepared at an early date.

The board of directors, Southwestern Insane Asylum, San Antonio, Tex., has plans under way for a new power plant to cost about \$100,000. Phelps & DeWees, San Antonio, are architects.

Fire, May 29, destroyed a portion of the works of the Henry L. Vaughn Automobile Co., Commerce Street, with loss in excess of \$60,000.

H. W. Dexter, Jacksonville, Fla., is making inquiries for an electric generator of about 650 kw. capacity, or two units, each approximately 300 kw.

The Central South

St. Louis, June 5.

The Standard Foundry & Mfg. Co., Kansas City, Mo., manufacturer of stoves, hardware specialties, etc., will build a new plant estimated to cost about \$125,000, including equipment.

The Wabash Railway is expected to make awards soon for the following list of machine tools, bids for which closed on May 25:

- One heavy self-feed rip saw for use at Luther car shops.
- One heavy self-feed rip saw for use at Landers car shops.
- One band saw for Delray car shop.
- One band saw for Luther car shop.
- One hollow chisel mortiser and borer for Luther car shop.
- One hollow chisel mortiser and borer for Landers car shop.
- One heavy self-feed rip saw for Delray car shops.
- One car wheel press for Decatur locomotive shops.
- One 32-in. back geared crank shaper for Montpelier roundhouse.
- One 32-in. back geared crank shaper for Decatur roundhouse.
- One 32-in. back geared crank shaper for Moberly locomotive shops.
- One 32-in. back geared crank shaper for Peru roundhouse.
- One 48 x 48-in. x 10-ft. planer for Fort Wayne locomotive shops.
- One universal tool and cutter grinder for Moberly locomotive shops.
- One 48 x 48-in. x 10-ft. planer for Moberly locomotive shops.
- One 16-in. portable belt lathe for Moberly locomotive shops.
- One 36-in. vertical turret lathe for Moberly locomotive shops.
- Two 16-in. belt lathes for Decatur locomotive shops.
- One 18-in. engine lathe for Moberly locomotive shops.
- One 20-in. gap grinder for Moberly locomotive shops.
- One 20-in. engine lathe for Decatur locomotive shops.

The Federal Ice Machine Co., St. Louis, will commence the immediate erection of a new six-story cold storage and refrigerating plant, 190 x 475 ft., at Broadway and Brooklyn Street, estimated to cost close to \$1,000,000, including machinery. S. Scott Joy, 2001 West Thirty-ninth Street, Chicago, is architect.

The Millers Creek Kentucky Mining Co., Auxier, Ky., will install a new aerial tramway and other equipment at its plant.

The Wadsworth Electric Co., Covington, Ky., manufacturer of switches and other electrical products, has tentative plans under way for a new works to provide more than four times the present capacity. The plant on Pike Street recently has been sold. George B. Wadsworth is president.

Fire, May 27, destroyed a portion of the plant of the Arkansas Foundry Co., Thomas and Sixth streets, Little Rock, Ark., with loss estimated at about \$35,000.

The Southern Oklahoma Power Co., Shawnee, Okla., has

arranged for a bond issue of \$1,380,000, a portion of the proceeds to be used for extensions and improvements. William A. Baehr is president.

The Jackson Lumber & Supply Co., Jackson, Ky., is planning to rebuild its mill, recently destroyed by fire, with loss estimated at \$125,000, including machinery. W. C. Cole is general manager.

A vocational department will be installed in the new two-story junior high school to be erected at Lawton, Okla., estimated to cost about \$235,000. Plans have been completed by Tonini & Bramblett, Terminal Building, Oklahoma City, Okla., architects.

The Pittsburgh Brick & Tile Co., Ashland, Ky., recently organized with a capital of \$200,000, has acquired about 400 acres at Summitt for a new plant to manufacture brick, tile, etc., estimated to cost in excess of \$125,000, including machinery. S. S. Willis and W. L. Bybee, both of Ashland, head the company.

The Tennessee Electric Power Co., Chattanooga, Tenn., formed by a recent consolidation of the Chattanooga Railway & Light Co., and the Nashville Railway & Light Co., is disposing of a bond issue of \$12,150,000, the proceeds to be used in part for extensions and improvements in power plants and system. C. M. Clark is chairman of the board.

F. E. Ford, 313 East Fourth Street, Carthage, Mo., operating a woodworking shop, is planning for the installation of a new lathe, sanding machine and other equipment.

The Common Council, Thomas, Okla., is arranging for a bond issue of \$28,000, the proceeds to be used for a municipal electric power plant. H. G. Olmstead & Co., Tradesmen's National Bank Building, Oklahoma City, Okla., are engineers.

A vocational department will be installed in the two-story and basement high school to be erected at Rodgersville, Tenn., estimated to cost about \$100,000. D. R. Beeson, Harrison Building, Johnson City, Tenn., is architect.

The Universal Motor Co., 93 Union Avenue, Memphis, Tenn., has plans under way for a new one and two-story automobile service and repair building, 95 x 150 ft. J. M. Walker is president and treasurer.

The Pacific Coast

SAN FRANCISCO, May 30.

Little change is noted in the machine tool market, conditions appearing to have settled after a slight flurry a month ago. Demand for new materials is very light, and what business there is seems to be in second-hand tools. Leading manufacturers which usually are large buyers of machine tools, are making purchases sparingly.

The Merced Irrigation District, Merced, Cal., will build a new one-story machine shop for parts production and repairs. Ira W. Hoover, Planada, Cal., is architect. W. D. Wagner is secretary.

The Bethlehem Shipbuilding Co., San Francisco, will build new machine shops and other mechanical buildings at its shipyards at San Pedro.

F. A. McCann, Stockton, Cal., care of David-Heller-Pearce, Delta Building, architects, has plans under way for a new two-story automobile service building and machine shop, 75 x 100 ft., estimated to cost \$55,000.

The General Engine Co., care of the Industrial Committee, Chamber of Commerce, Vallejo, Cal., has negotiations under way for the purchase of a site for the erection of a new plant.

The Lake Hemet Water Co., Hemet, Cal., has made application for permission to build and operate a hydroelectric power plant on Strawberry Creek, with initial capacity of about 5000 hp.

The Cleveland Metal Products Co., Platt Avenue, Cleveland, manufacturer of oil stoves, etc., has acquired property at Emeryville, Cal., as a site for a Western plant.

A vocational department will be installed in the group of high school buildings to be erected by the Sequoia Union High School District, Redwood City, Cal., estimated to cost about \$300,000. Werner & Coffey, 312 Humboldt Bank Building, San Francisco, are architects.

The Columbia Tire Co., Northwestern Bank Building, Portland, Ore., has awarded contract to the Hauser Construction Co., Henry Building, for a new two-story plant, estimated to cost \$100,000, including machinery. R. A. Wurzburg is head.

The Oregon Pulp & Paper Co., Salem, Ore., is planning for an addition, with improvements in the present mill, to cost about \$50,000. C. F. Beyerli is general manager.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-ferrous Metals."

Iron and Soft Steel Bars and Shapes

Bars:	Per Lb.
Refined iron bars, base price	2.48c. to 2.58c.
Swedish bars, base price	7.00c.
Soft steel bars, base price	2.48c. to 2.58c.
Hoops, base price	3.38c. to 3.63c.
Bands, base price	2.98c. to 3.23c.
Beams and channels, angles and tees	
3 in. x ¼ in. and larger, base	2.58c. to 2.68c.
Channels, angles and tees under 3 in. x	
¼ in., base	2.48c. to 2.58c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	2.60c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)...	2.80c.
Toe-calk, ½ x ½ in. and larger	3.30c.
Cold-rolled strip, soft and quarter hard	6.25c. to 7.25c.
Open-hearth spring steel	3.50c. to 6c.
Shafting and Screw Stock:	
Rounds	3.35c.
Squares, flats and hex	3.85c.
Standard cast steel, base price	12.00c.
Extra cast steel	17.00c.
Special cast steel	22.00c.

Tank Plates—Steel

¼ in. and heavier	2.58c. to 2.68c.
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Sheets

Blue Annealed	Per Lb.
No. 10	3.48c. to 3.63c.
No. 12	3.53c. to 3.68c.
No. 14	3.58c. to 3.73c.
No. 16	3.63c. to 3.83c.

Boz Annealed—Black

	Soft Steel	Blued Stove
	C. R., One Pass,	Pipe Sheet,
	Per Lb.	Per Lb.
Nos. 18 to 20	4.00c. to 4.15c.	.....
Nos. 22 and 24	4.05c. to 4.20c.	3.35c.
No. 26	4.10c. to 4.25c.	4.40c.
No. 28	4.20c. to 4.35c.	4.50c.
No. 30	4.45c. to 4.60c.	.....

No. 28 and lighter, 36 in. wide, 10c. higher.

Galvanized

	Per Lb.
No. 14	4.30c. to 4.45c.
No. 16	4.45c. to 4.60c.
Nos 18 and 20	4.60c. to 4.75c.
Nos. 22 and 24	4.75c. to 4.90c.
No. 26	4.90c. to 5.05c.
No. 27	5.05c. to 5.20c.
No. 28	5.20c. to 5.35c.
No. 30	5.70c. to 5.85c.

No. 28 and lighter, 36 in. wide, 20c. higher.

Welded Pipe

Standard Steel	Black	Galv.	Wrought Iron	Black	Galv.
½ in. Butt..	—56	—40	¾ in. Butt..	—30	—13
¾ in. Butt..	—61	—47	1½ in. Butt..	—32	—15
1-3 in. Butt..	—63	—49	2 in. Butt..	—27	—10
3½-6 in. Lap.	—60	—46	2½-6 in. Lap.	—30	—15
7-8 in. Lap..	—56	—34	7-12 in. Lap..	—23	—7
9-12 in. Lap..	—55	—33			

Steel Wire

	Per Lb.
Bright basic	3.50c. to 3.75c.
Annealed soft	3.50c. to 3.75c.
Galvanized annealed	4.25c. to 4.50c.
Coppered basic	4.00c. to 4.25c.
Tinned soft Bessemer	5.50c. to 5.75c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	16¼c. to 17¼c.
High brass wire	17¼c. to 17¾c.
Brass rod	14¼c. to 15¼c.
Brass tube, brazed	23¼c. to 24¼c.
Brass tube, seamless	19¼c. to 20 c.
Copper tube, seamless	22¼c. to 23¼c.

Copper Sheets

Sheet copper, hot rolled, 24 oz., 20½c. to 21½c. per lb. base.
Cold rolled, 14 oz. and heavier, 2c. per lb. advance over hot rolled.

Tin Plates

Bright Tin	Grade	Grade	Coke—14-20	Primes	Wasters
	"AAA"	"A"			
	Charcoal	Charcoal			
	14x20	14x20			
IC..	\$10.00	\$8.50	80 lb..	\$6.05	\$5.80
IX..	11.50	10.00	90 lb..	6.15	5.90
IXX..	13.00	11.25	100 lb..	6.25	6.00
IXXX..	14.25	12.50	IC..	6.40	6.15
IXXXX..	16.00	14.00	IX..	7.40	7.15
			IXX..	8.40	8.15
			IXXX..	9.40	9.15
			IXXXX..	10.40	10.15

Terne Plates

8-lb. coating, 14 x 20

100 lb.	\$7.00
IC	7.25
IX	7.50
Fire door stock	9.00

Tin

Straits, pig	34¼c.
Bar	41c. to 45c.

Copper

Lake ingot	15¼c.
Electrolytic	15 c.
Casting	14¼c.

Spelter and Sheet Zinc

Western spelter	6¼c. to 7c.
Sheet zinc, No. 9 base, casks	8½c. open 9c.

Lead and Solder*

American pig lead	6¼c. to 6½c.
Bar lead	7 c. to 7½c.
Solder, ½ and ½ guaranteed	24c.
No. 1 solder	22½c.
Refined solder	19c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c.
Commercial grade, per lb.	35c.
Grade D, per lb.	25c.

Antimony

Asiatic	6½c. to 7c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	25c. to 27c.
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Old Metals

The market has been quiet during the past week but values are firm. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy crucible	11.50
Copper, heavy wire	11.00
Copper, light and bottoms	8.75
Brass, heavy	5.75
Brass, light	5.00
Heavy machine composition	8.50
No. 1 yellow brass turnings	5.75
No. 1 red brass or composition turnings	7.50
Lead, heavy	4.25
Lead, tea	3.00
Zinc	2.75

